Weaver
CONSTRUCTION MANAGEMENT
3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITAL

February 2, 2012
Submittal No: 11332-002 (OM)

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **WesTech Engineering, Inc.**
3665 S West Temple
Salt Lake, UT 84115
801-265-1000

SUBJECT: Preliminary O&M for the Cleanwash Screw Wash Presses SWP20-80 & Control Panels (SW-1 & SW-2)

SPEC SECTION: 11332 – Screenings Compactor

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES _X_ NO

CONTRACTOR'S STAMP: This submittal has been reviewed by WCM and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto:

Contractor's Stamp:	Engineer's Stamp:
Date: 2/02/12 Reviewed by: Chuck Berry ( ) Reviewed Without Comments (X) Reviewed With Comments ENGINEER'S COMMENTS:_____	

Project: HDTWRF

Location: Fountain, CO

Supplier: WesTech Engineering Inc. / Goble Sampson Assoc.

Date: 2/2/12

Submittal No: 11332-002 OM

WCM O&M Submittal Review Comments:

1. **On the title cover page for the O&M, per spec section 01730, indicate: Headworks Building**
2. **On the title cover page for the O&M, indicate the equipment number as shown on the contract drawings. For this equipment the numbers are: SW-1 and SW-2.**
3. **The contract requires that the warranty is for two years from the date of substantial completion regardless of the date of delivery.**
4. **In part two of the O&M on page 2-5, remove (IF PROVIDED) from the Control Panel information since Control Panels are provided.**
5. **In part three of the O&M on page 3-4, paragraph 6 and 7 both have "if provided" references to the control panel. Remove this reference since control panels are provided.**
6. **In part four of the O&M on page 4-3, paragraph 6 calls for lubrication according to the schedule on the following page, which would be page 4-4. There is no lubrication schedule on page 4-4. Refer to the correct page number or numbers.**

WESTECH AN EMPLOYEE OWNED COMPANY

OPERATION & MAINTENANCE MANUAL

EQUIPMENT:

TWO (2) CLEANWASH™ SCREENINGS WASH PRESS

MODEL SWP20-80

FOR:

HAROLD D THOMPSON RWRF

FOUNTAIN, CO

FURNISHED BY:

WESTECH ENGINEERING, INC.

SALT LAKE CITY, UTAH

WESTECH JOB NUMBER 21393A

January, 2012

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WESTECH AN EMPLOYEE OWNED COMPANY

OPERATION AND MAINTENANCE MANUAL

TWO (2) CleanWash™ SCREENINGS WASH PRESS

MODEL SWP20-80

FOR:

HAROLD D THOMPSON WATER RECLAMATION FACILITY

FOUNTAIN, CO

ENGINEER:

GMS, Inc. Consulting Engineers
611 North Weber, Suite 300
Colorado Springs, Colorado 80903-1074

WESTECH AGENT:

GOBLE SAMPSON ASSOCIATES
6805 N. BROADWAY
DENVER, CO 80221
CONTACT: JOSH QUEEN
PHONE: (303) 770-6418
FAX: (303) 770-7549
jqueen@goblesampson.com

MANUFACTURER:

WESTECH ENGINEERING, INC.
3625 SOUTH WEST TEMPLE
SALT LAKE CITY, UTAH 84115
PHONE: (801) 265-1000
FAX: (801) 265-1080
24 HOUR EMERGENCY ASSISTANCE (801) 263-4093
www.westech-inc.com

WESTECH JOB NUMBER **21393AB**
JANUARY, 2012

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TABLE OF FIGURES

SUMMARY OF WARNINGS

This page lists all warnings contained in this manual and the page numbers on which they are found.

WesTech will not accept responsibility for damage to equipment which has not been handled in accordance with the manufacturer's instructions. Please read the General Precautions, General Safety Instructions, and Storage & Shutdown Precautions sections of this manual before storing, installing, or operating this equipment.

- Anti-seize compound MUST be used on all stainless steel fasteners to prevent galling or seizing.

- If grouting is necessary (see general arrangement drawing(s)), do not grout under support stands until final leveling is completed and verified.

- In order to avoid corrosion, touch-up any paint or galvanizing damaged during installation.

- To prevent personal injury, the CleanWash™ must be shut down before any maintenance or adjustments requiring personal contact are made. If the unit is opened for inspection, cleaning, or observation, the motor must be locked out electrically in such a manner that it cannot be restarted by anyone during the inspection, cleaning, or observation.

- The helical auger will act as a torsional spring and store a tremendous amount of energy if it becomes caught or jammed. This could cause serious injury or death if released suddenly. Ensure that no energy is stored in the auger before performing any maintenance on the equipment.

- The CleanWash™ is not designed to be run continuously. The unit should be run in batch wash cycles to maximize the life of the equipment and to optimize washing effectiveness.

- All fasteners should be checked regularly and tightened as required.

- The equipment must be routinely lubricated according to the Lubrication Schedule and the accessory item instructions enclosed. **Failure to do so will shorten the lifetime of the equipment and void the equipment warranty.**

- If reducer unit is removed, keep driveshaft clean of all debris and dirt. Any contamination will make replacing the reducer more difficult and perhaps impossible.

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1 EQUIPMENT INFORMATION

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WESTECH

WARRANTY

WesTech equipment is backed by WesTech's reputation as a quality manufacturer, and by many years of experience in the design of reliable equipment.

Equipment manufactured or sold by WesTech Engineering, Inc., once paid for in full, is backed by the following warranty:

For the benefit of the original user, WesTech warrants all new equipment manufactured by WesTech Engineering, Inc. to be free from defects in material and workmanship, and will replace or repair, F.O.B. its factories or other location designated by it, any part or parts returned to it which WesTech's examination shall show to have failed under normal use and service by the original user within one (1) year following initial start-up, or eighteen (18) months from shipment to the purchaser, whichever occurs first. Such repair or replacement shall be free of charge for all items except for those items such as resin, filter media and the like that are consumable and normally replaced during maintenance, with respect to which, repair or replacement shall be subject to a pro-rata charge based upon WesTech's estimate of the percentage of normal service life realized from the part. WesTech's obligation under this warranty is conditioned upon its receiving prompt notice of claimed defects, which shall in no event be later than thirty (30) days following expiration of the warranty period, and is limited to repair or replacement as aforesaid.

THIS WARRANTY IS EXPRESSLY MADE BY WESTECH AND ACCEPTED BY PURCHASER IN LIEU OF ALL OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY. WESTECH NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY WITH RESPECT TO ITS EQUIPMENT. WESTECH SHALL NOT BE LIABLE FOR NORMAL WEAR AND TEAR, CORROSION, OR ANY CONTINGENT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR EXPENSE DUE TO PARTIAL OR COMPLETE INOPERABILITY OF ITS EQUIPMENT FOR ANY REASON WHATSOEVER.

This warranty shall not apply to equipment or parts thereof which have been altered or repaired outside of a WesTech factory, or damaged by improper installation, application, or maintenance, or subjected to misuse, abuse, neglect, accident, or incomplete adherence to all manufacturer's requirements, including, but not limited to, Operations & Maintenance Manual guidelines & procedures.

This warranty applies only to equipment made or sold by WesTech Engineering, Inc.

WesTech Engineering, Inc. makes no warranty with respect to parts, accessories, or components purchased by the customer from others. The warranties which apply to such items are those offered by their respective manufacturers.

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EQUIPMENT RECORD FORM

NOTE: To keep your warranty in force, this form must be completed and returned to WesTech regularly as indicated on the schedule at the bottom.

WESTECH PROJECT NUMBER:_____
EQUIPMENT I.D. NO.:_____
DATE:_____

MOTOR LOADS:
DATE READ:_____ AMPS #1_____ #2_____ #3_____LINE VOLTAGE:
DATE LUBRICATED:_____TYPE OF GREASE USED:_____

REDUCER:
DATE LUBRICATED:_____
BRAND OF OIL:_____WEIGHT OF OIL:_____

SPRAY WASH:
SOLENOID OK:_____ TIMER SETTING ON:_____OFF:_____

DRAIN FLUSH:
SOLENOID OK:_____ TIMER SETTING ON:_____OFF:_____

DRAIN PIPING :
DATE CHECKED:_____

GENERAL FASTENERS: DATE CHECKED:_____

Any other observations or comments:_____
_____

SIGNED:_____

TITLE:_____

REPORTS DUE: At regular three (3) month intervals after start-up.

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WesTech Municipal Water Products

GROUNDWATER TREATMENT

Aeration

- Cascading Aerator
- Forced Draft Aerator
- Induced Draft Aerator

Sedimentation/Clarification

- Ballasted Flocculation
- ClariCell™ Package Treatment Plant
- Conventional Clarifier
- Flocculating Clarifier
- High Rate Clarifier
- solids CONTACT CLARIFIER™
- SuperSettler™ Inclined Plate Settler

Filtration

- AeraFilter™ Iron and Manganese Removal Plant
- AltaFilter™ Ultrafiltration Membrane System
- AltaPac™ Ultrafiltration Membrane System
- Circular and Rectangular Open Top Gravity Filter
- ClariCell-B™ Package Treatment Plant
- Horizontal and Vertical Pressure Filter
- ModTech™ Cluster Filter

Residuals Handling

- Backwash Water Clarifier
- Decant Mechanism
- Gravity Sludge Thickener
- SuperSettler™ Inclined Plate Settler
- Vacuum Drum Filter

Softening

- Cation Exchange Softener
- Solids CONTACT CLARIFIER™

SURFACE WATER TREATMENT

Flocculation

- Ducted Impeller Flocculator
- Horizontal Paddle Wheel Flocculator
- Vertical Paddle Wheel Flocculator

Sedimentation/Clarification

- ClariCell™ Package Treatment Plant
- Conventional Clarifier
- Flocculating Clarifier
- High Rate Clarifier
- Solids CONTACT CLARIFIER™
- SuperSettler™ Inclined Plate Settler

Filtration

- AltaFilter™ Ultrafiltration Membrane System
- AltaPac™ Ultrafiltration Membrane System
- Circular and Rectangular Open Top Gravity Filter
- ClariCell-B™ Package Treatment Plant
- Horizontal and Vertical Pressure Filter
- ModTech™ Cluster Filter
- PolyBloc™ Roughing Filter

Package Treatment Plants

- AltaFilter™ Ultrafiltration Membrane System
- AltaPac™ Ultrafiltration Membrane System
- ClariCell-B™ Package Treatment Plant

Ion Exchange

- Cation Exchange Softener
- GAC Contactor

Residuals Handling

- Backwash Water Clarifier
- Decant Mechanism
- Gravity Sludge Thickener
- SuperSettler™ Inclined Plate Settler
- Vacuum Drum Filter

Services

- Bench Scale Feasibility Testing
- Field Pilot Studies
- Full Scale Rental Equipment
- Installation and Erection Services
- Mechanical Evaluations
- Plant Process Audits

Tankage

- Supply and Erection

Tel: 801.265.1000
Fax: 801.265.1080
www.westech-inc.com

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Process Equipment. Process Driven.

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WesTech Municipal Wastewater Products

Anaerobic Digestion Equipment
- Digester Cover - Radial Beam Style
- Digester Cover - Truss Style
- DuoSphere™ Dual-Membrane Gas Holder
  - Slab and Tank Mount
- Extreme Duty™ Mechanical Sludge Mixer
- Sludge Heating System

Biological Treatment
- Landox™ Oxidation Ditch
- OxyStream™ Advanced Oxidation Ditch Process
- Slow Speed Surface Aerators
- STM-Aerotor™ IFAS Systems
- ClearLogic™ MBR System
- HydroDoc™ Rotary Distributor
- BioDoc® Rotary Distributor

Clarifiers
- C.O.P.™ Clarifier Optimization Package
  - Spiral Blades
  - Sludge Ring
  - Dual Gate EDI
- Suction Header
- solids CONTACT CLARIFIER™
- Conventional Scraper Blade
- Suction Pipe

Combined Sewer Overflow
- CleanFlo™ ROMAG CSO Screens

Dissolved Air Flotation
- Pretreatment Clarifiers
- Sludge Thickeners
- Rectangular & Circular

Electrical Controls
- PLC Based Control Systems
- UL Listed Panels (UL508A/CSA)

Filters
- AltaFilter™ Ultrafiltration Membrane System
- SuperSand™ Continuous Backwash Filter
- Granular Media Gravity Filter
- Multi-Media Pressure Filter
- SuperDisc™ Cloth Media Disc Filter

Headworks
- CleanFlo™ Rotoscreen®
- CleanFlo™ Monoscreen®
- CleanFlo™ ALL-IN-ONE (Complete Plant)
- CleanFlo™ Element Continuous Belt Screen
- CleanFlo™ Perf Perforated Plate Belt Screen
- CleanFlo™ Shear (Internally Fed Drum Screen)
- CleanFlo™ SludgeScreen®
- CleanFlo™ Spiral Screen
- CleanWash™ Screenings Washer / Compactor
- Counter Pressure Screw
- CleanGrit™ Grit Washers
- Gritt Mitt™ Grit Classifiers
- Vortex Grit Separators

Laboratory & Pilot Plant Test Equipment
- Bench Scale Testing
- Pilot Plant Testing

Parts and Service Support
- 24 Hour Hot-Line
- Regional Service Technicians
- Full Service Parts Department

Rectangular Basin Skimming
- Helical Scum Skimmers
- Rotating Scum Pipes

Replacement Drives
- Adaptable to All Other Manufacturers
- Precision Bearing
- Grease Lubricated Option
- Clarifiers
- Thickeners

Septage Receiving Station
- Screening and Grit Removal Options
- Hauler Access Stations
- Customer Management / Billing Software

Tankage
- Material Supply
- Field Erection

Thickeners
- Center Feed
- Rake Lifting Devices
- Side Feed

WesTech

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WesTech Mining and Metallurgical Products

Clarifiers
- Buoyant Media Clarifier
- Flocculating Clarifier
- Metallurgical Contact Clarifier
- Solids CONTACT Clarifier™
- SuperSettler™ Inclined Plate Settler

Clarifier / Thickener Drives
- Adaptable to All Other Manufacturers
- Bridge Supported Shaft Drive
- Column Supported Cage Drive
- Traction Drive

Granular Media Filtration
- Horizontal Pressure Filter
- Open Top Gravity Filter
  - Circular
  - Rectangular
- SuperSand™ Continuous Backwash Filter
- Vertical Pressure Filter

Magnetic Separators
- Permanent Magnet Belt Separator

Man Camp Potable Water Treatment
- AltaFilter™ Ultrafiltration Membrane System
- AltaPac™ Ultrafiltration Package System
- ClariCell-B™ Package Treatment Plant

Man Camp Wastewater Treatment
- ClearLogic™ MBR System
- STM-Aerotor™ IFAS Package System

Parts / Field Service / Training
- 24 Hour Hot-Line
- Full Service Parts Department
- Installation and Erection Services
- Mechanical Evaluations
- Operator Training
- Process Training
- Regional Service Technicians

Screens
- CIP / CIL Carbon Retention Screen
- Linear Screen

Services
- Bench Scale Feasibility Testing
- Field Pilot Studies
- Installation and Erection Services
- Mechanical Evaluations
- Plant Process Audits
- Pilot Rental Equipment
  - AltaFlo™ High Rate Thickener
  - AltaPac™ Ultrafiltration Package System
  - Buoyant Media Clarifier
  - High Rate Thickener
  - Horizontal Belt Filter
  - Linear Screen
  - Paste Thickener
  - Precoat Filter
  - Rotary Drum Filter
  - Solids Contact Clarifier

Tankage
- Anchor Channel Tank
- Elevated Tank
- Steel Bottom Tank
- Supply and / or Field Erection

Thickeners
- AltaFlo™ High Rate Thickener
- Conventional Thickener
- Deep Bed™ Paste Thickener
- HiDensity™ Paste Thickener
- HiFlo™ High Rate Thickener
- Swing Lift Thickener

Vacuum Filters
- Disc Filter
- Horizontal Belt Filter
- Precoat Drum Filter
- Rotary Drum Filter
  - Belt Discharge
  - Roll Discharge
  - Scraper Discharge

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Aeration
Cascading Aerator
Forced / Induced Draft Aerator
Pressure Aerator

Barrier/Media Filtration
AeraFilter™ Iron / Manganese Removal
AltaFiler™ Ultrafiltration Membrane Systems
AltaPac™ Ultrafiltration Package Systems
AltaPak™ Ultrafiltration Systems
ClariCell-B™ Package Treatment
ModTech™ Cluster Filter
Open Top Gravity Filter (Circular or Rectangular)
PolyBloc™ Roughing Filter
Pressure Filter (Vertical or Horizontal)
Reverse Osmosis Systems
SuperSand™ Continuous Backwash Filter

Biological Treatment
BioDoc® Rotary Distributor
Biotreater
ClearLogic MBR Systems
DuoSphere™ Dual Membrane Gasholder (Slab or Tank Mount)
HydroDoc™ Rotary Distributor
Oxidation Ditches
Slow Speed Surface Aerators
Slow Speed Surface Aerators
STM Aerator™ IFAS Systems

Clarification/Sedimentation
Conventional Clarifier
COP™ Clarifier
Draft Tube™ Clarifier
Flocculating Clarifier
Metallurgical Contact Clarifier
Solids CONTACT Clarifier™
Suction Header
SuperSettler™ Incline Plate Settler

Clarifier / Thickener Drives
Adaptable to All Other Manufacturers
Precision Bearing

Dewatering
Belt Press
Horizontal Vacuum Belt Filter
Precoat Drum Filter
Recessed Plate Filter Press
Rotary Drum Vacuum Filter

Dissolved Gas Flotation
Circular
Rectangular
Sludge Thickener

Electrical Controls
PLC Based Control Systems
UL Listed Panels (UL508A / CSA)

Parts / Field Service /Training
24 Hour Hot-Line
Full Service Parts Department
Installation and Erection Services
Mechanical Evaluations
Operator Training
Process Training
Regional Service Technicians

Pilot Rental Equipment
AltaFilter™ Ultrafiltration Membrane Systems
AltaFlo™ High Rate Thickener
AltaPak™ Ultrafiltration Units
Buoyant Media Clarifier
High Rate Thickener
Horizontal Belt Filter
Linear Screen
Paste Thickener
Pilot Rental Equipment
Precoat Filter
Reverse Osmosis
Solids CONTACT Clarifier™
Vacuum Drum Filter

Oil / Water Separation
DAF Units (Circular or Rectangular)
DNF Units (Circular or Rectangular)
Oil / Water Separator (Circular or Rectangular)

Screens
CleanFlo™ Element Continuous Belt Screen
CleanFlo™ Monoscreen®
CleanFlo™ Rotoscreen®
CleanFlo™ Shear (Internally Fed Drum Screen)
CleanFlo™ Spiral Screen
CleanWash™ Screenings Washer / Compactor
Counter Pressure Screw
Gritt Mitt™ Grit Classifiers
Linear Screen

Softening
Cation Exchange Softener
Cold Lime Softening
Warm Lime Softening

Tankage
Anchor Channel Tank
Elevated Tank
Steel Bottom at Grade
Supply and / or Field Erection

Thickeners
AltaFlo™ High Rate Thickener
Conventional Thickener
Deep Bed™ Paste Thickener
HiDensity™ Paste Thickener
HiFlo™ High Rate Thickener

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CLEANWASH™ DESCRIPTION

The WesTech CleanWash™ screenings washer efficiently washes and compacts screened solids. Screened solids enter the CleanWash™ in the inlet area. Then the screened solids are pre-compacted into the washing zone where high-pressure nozzles wash visible fecal matter from the screenings. Finally, the washed screenings are conveyed through a discharge pipe, a conveyor, or a counter pressure system, before the screenings discharge into a solids receptacle.

To perform as described, the CleanWash™ Screenings Wash Press will consist of the following:

	Designation
1.	Screw wash press
2.	Transportation screw
3.	Motor
4.	Gear box
5.	Inspection door
6.	Flush water[1] connection
7.	Wash water[1] connection
8.	Inlet[2]
9.	Drain outlet
10.	Discharge

[1]Including ball and solenoid valve
[2]May include hopper

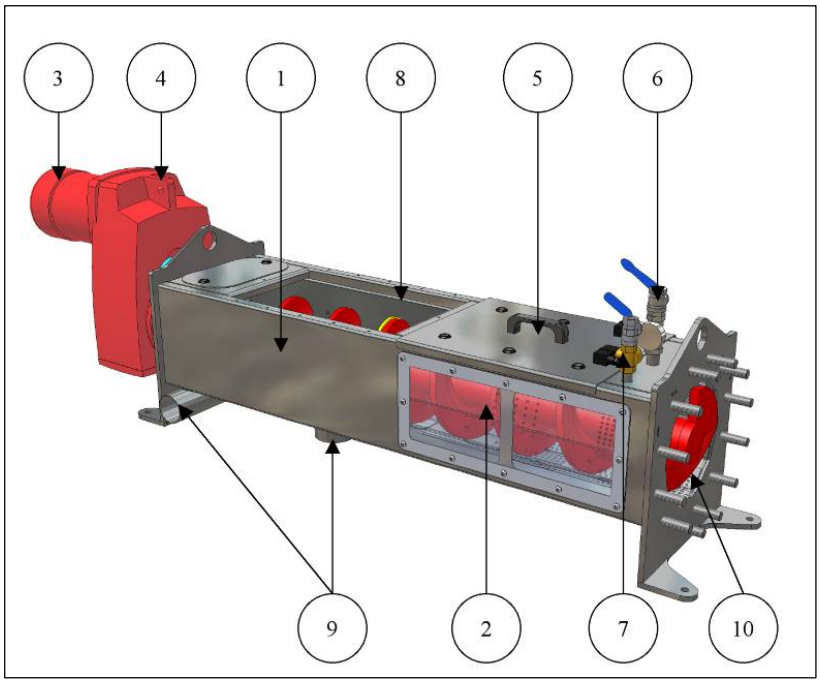

Figure 1-1: CleanWash™ Screenings Wash Press

SCREENINGS INLET SECTION

The screened solids are deposited into the inlet section by the feeding device. During this time, any free water with the screenings will drain through the trough that is constructed of drain bars. Screenings should accumulate in this section until the trough is approximately 1/3 full. After the solids have accumulated in the trough, a washing cycle should initiate. A shafted helical screw begins operation and conveys the screenings into a compacted solids plug at the wash section.

SCREENINGS WASH SECTION

The wash section is located just prior to the compacting section of the spiral. The spray nozzles direct high-pressure water at the screenings plug and wash fecal matter from the screenings. Water consumption of the spray system will require 25 GPM at a minimum 40 psi water pressure. Maximum allowable pressure is 80 psi.

SCREENINGS COMPACTION WITH DISCHARGE PIPING

Final compaction of the screenings is accomplished as the compaction section of the spiral pushes the washed screenings through the discharge piping. The solids will discharge in the form of a compact and dry plug into an appropriate solids receptacle or optional bagger assembly.

DRIVE UNIT

The CleanWash™ drive unit consists of an electric motor directly driving a flange-mounted, hollow shaft, helical gear reducer.

GENERAL PRECAUTIONS

The erection instructions enclosed are provided to assist in the assembly and adjustment of this mechanism. These procedures are not intended to be substituted for the experience of the persons assigned to the task of erecting and assembling this equipment. WesTech strongly suggests that these instructions be studied prior to erecting, assembling, and adjusting.

During assembly of this equipment, it will be necessary to install, adjust, and maintain certain accessory items which are not manufactured by WesTech. This accessory equipment must be stored, handled, adjusted, and maintained in accordance with instructions provided by the manufacturer of that equipment. This is absolutely necessary in order to be assured of prompt and full participation in the warranty protection on the equipment. WesTech will not accept responsibility for damage to equipment which has not been handled in accordance with the manufacturer's instructions.

When unloading the CleanWash™ Screenings Wash Press, a spreader bar (recommended) and straps are recommended to prevent damage to the unit. The flush water connection may need to be removed before lifting to prevent damage as shown below. DO NOT LIFT THE CleanWash™ UNIT FROM UNDERNEATH. THIS WILL CAUSE DAMAGE TO THE UNIT.

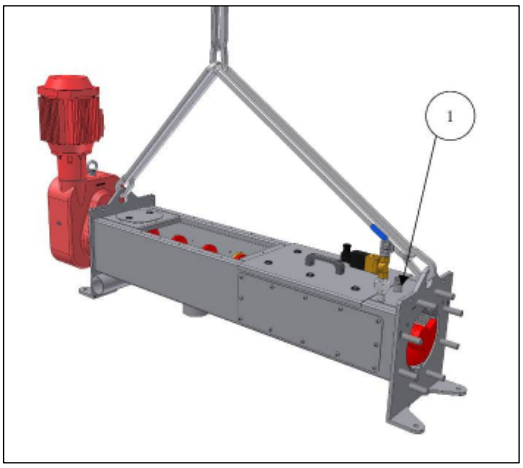

Figure 1-3: Lifting the CleanWash™

PACKING LIST

The Contractor's packing list consists of a sheet containing an itemized listing of parts.
The packing list contains:

1. A description of the item.
2. Sizes and lengths of nuts and bolts. These fasteners will ship tagged with the item numbers.
3. Total quantity of parts shipped.
4. An indication of direct shipment from the supplier or the fabricator.
5. The date and job number of the shipment.

The packing list will be found in either all or one of the cartons. The list should be kept in a readily accessible and safe place. Many contractors prefer to keep this list in some type of binder for protection and quick reference.

This list is particularly useful during erection for locating small parts and fasteners. When coordinated with the erection drawings, equipment tagging, and piece marking, the contractor's packing list can become an invaluable erection tool.

EQUIPMENT TAGS:

Each shipping piece has been tagged or piece marked for convenience. Typically the part number and item number will be marked on all items. Piece marked items received will have a mark such as "Part No. D120" or “Item 203" which may be cross referenced with the packing list and general erection drawings.

RECEIVING MATERIAL:

The equipment pieces and components received may have been shipped from:

1. WesTech Engineering, Inc. in Salt Lake City, Utah.
2. A fabricator acting under WesTech Engineering's instructions.
3. A "buy-out" distributor such as a motor or pump manufacturer.

Since there will often be more than one shipment to the job site, it is important to coordinate the receiving and storage of all items accordingly. All material has been thoroughly checked and inspected before shipment. However, there may be times when equipment is missing, damaged in transit or received with broken packaging. When receiving equipment, it is necessary to properly acknowledge receipt and any shortage or damage on the shipping documents. This must be done in a manner that helps assign responsibility to the proper party for the various parts of shipping and receiving equipment.

When receiving a shipment, the following procedures must be followed. These procedures are also listed on the Bill of Lading the shipping company provides and must be signed to prove delivery of the goods. If the following procedures are not followed, WesTech will not be liable for any shortages or damage on your shipments.

RECEIVING PROCEDURE

1. BEFORE signing the Bill of Lading (BOL) in receipt of the goods shown thereon, and BEFORE the driver leaves, do the following:

   A. After inspecting the shipment, NOTE any damage or shortages (according to what is listed on the BOL). Be as detailed as necessary.

   B. Have the driver sign the notation in acknowledgment.

C. Retain a copy (of the notated BOL) for use in filing a freight claim.

D. If there is damage, NOTIFY WesTech (801) 265-1000 IMMEDIATELY so that arrangements can be made with the carrier, if necessary, to have the damaged goods inspected by their agent.

2. AFTER signing the BOL and receiving the shipment, do the following:

A. Use the attached/enclosed packing list to further inspect the entire shipment for shortages and/or damage and retain this list for future reference.

B. NOTIFY WesTech within THREE (3) working days from date of receipt, of any further shortages or concealed damage. If certain items are missing or damaged, make notes of this on the shipping papers to protect all interests and notify WesTech (801) 265-1000 IMMEDIATELY.

HANDLING & STORAGE

Please handle the equipment properly when unloading and erecting. All cartons, electrical equipment, and gear drives should be stored under cover and protected from moisture, grit, and mud. All rolled steel sections must be stored on edge or blocked up to prevent distortion. If allowed to lay flat, these items may lose their shape which could hinder erection and proper alignment of the equipment.

Long structural shapes should be checked for the proper camber. This would include beams, trusses, walkways, etc. The equipment has been designed with a positive camber so items do not appear to be sagging after erection.

PAINTING:

The material supplied for this job may have received surface preparation and paint in accordance with the specific contract plans and specifications.

Any indentations, mars, and/or scratches caused by loading and unloading the equipment must be IMMEDIATELY touched up in the field prior to storage.

NOTE: SHOP PRIMER PAINT DURABILITY

In the event the equipment supplied has been painted with only a primer coat, this notification should be adhered to. Shop primer paints are intended to serve only as a bonding coat between the metallic surface and the protective finish and serve only as a minimal protective finish. Unless otherwise noted in the contract documents, WesTech will not be responsible for condition of primed or finish painted surfaces after the equipment leaves our shops. Customers are invited to inspect coatings in our shops for proper surface preparation and application prior to shipment. WesTech assumes no responsibility for field surface preparation or touch up of shipping damage to paint. Painting of surfaces requiring touch up or painting of fasteners will be by the customer's painting contractor after the mechanism is erected.

Shop primed surfaces should be finish coated within the time specified by the paint manufacturer. WesTech cannot be held responsible for shop primed surfaces that have deteriorated due to time and exposure.

FASTENERS:

All stainless steel erection fasteners shall incorporate anti-seize during assembly. Failure to utilize this will cause significant extra time for the erection and maintenance crews.

FOUNDATION ANCHOR BOLTS:

If required, anchor bolts are shipped direct to the job site upon receipt of the approved prints by WesTech Engineering. Notify WesTech immediately if anchor bolts are not received as promised.

Anchor bolts must be placed accurately to avoid future erection difficulties. Where applicable and upon request, WesTech can furnish a template for positioning the anchor bolts. If a template has not been furnished, remember that the location and projection of all anchorage is critical. The specified amount of projection and location are shown on the General Arrangement drawing(s). Prior to equipment installation, clean the threads of all anchor bolts.

OPERATION & MAINTENANCE MANUAL:

Keep an O&M Manual in the area where the operators can familiarize themselves with it and have it for reference. The manual is useless if the operator and foreman do not have access to it.

FURTHER ASSISTANCE:

If a problem is encountered in installing or operating the equipment which cannot be solved by referring to this manual, feel free to contact WesTech Engineering, Inc., 3625 South West Temple, Salt Lake City, Utah 84115 (801) 265-1000 or fax (801) 265-1080. See also our website at www.westech-inc.com.

SHORTAGES, DISCREPANCIES, AND FIELD CHARGES

Please notify WesTech Engineering, Inc. immediately if any apparent manufacturing discrepancies or shortages are encountered with machinery, since no field charges for alterations or shortages will be accepted unless authorized in writing by our authorized representative.

Fabricated steel parts and assemblies furnished by WesTech Engineering, Inc. are manufactured following best shop practices and standards. However, some misfits and imperfect work may arise. In such cases, the American Institute of Steel Construction ASD, Ninth Edition, or LRFD, First Edition, "Code of Standard Practice", will apply to erection of this equipment. It reads as follows:

> "7.12. Corrections and Errors
>
> Normal erection operations include the correction of minor misfits by moderate amounts of reaming, chipping, welding or cutting, and the drawing of elements into line through the use of drift pins. Errors which cannot be corrected by the foregoing means or which require major changes in member configuration are reported immediately to the owner and fabricator by the erector, to enable whoever is responsible either to correct the error or to approve the most efficient and economic method of correction is to be used by others."

Company policy dictates that no field charges will be allowed without prior approval. Written authority must be given in the form of a WesTech Inspection and Change Work form with an attached warranty tracking number. The Warranty tracking number will be issued when the extent of such modifications and the price for performing these modifications have been agreed upon.

In general, when parts require replacement, and WesTech agrees that replacement is necessary, WesTech will furnish the parts. The contractor will remove the defective parts and install the replacement parts at a cost agreed upon by both parties.

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2 INSTALLATION INSTRUCTIONS

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CLEANWASH™ INSTALLATION

The sequence and procedures listed below are suggested, and should not take precedence over the experience of the erector, if due to special circumstances or available equipment he should decide to vary the given steps.

Refer to the General Assembly drawing(s). If installation is not immediately started upon delivery of the equipment, the appropriate short or long-term storage procedure in the Maintenance and Parts section must be followed.

The CleanWash™ Screenings Washer is preassembled in the shop. Only minor field assembly is required.

IMPORTANT: Anti-seize MUST be used on all stainless steel fasteners to prevent galling or seizing. The dimensions shown on the General Arrangement drawing(s) are theoretical and may require modification to match field conditions. As such, it is recommended that the equipment be temporarily placed where it will operate prior to fixing anchor bolt positions in order to verify dimensions.

1. Position the CleanWash™ unit to accept the solids from the screen or conveyor. The inlet hopper should be fastened to the washer body to confirm that the inlet is in the proper position to accept solids. Also confirm the proper position of the solids discharge pipe. Mark the position of each anchor and move the CleanWash™, if required, to allow for installation of the anchors.

2. Install CleanWash™ anchors per the anchor manufacturer's instructions in the Accessory Equipment section of this manual and the General Arrangement drawing(s).

3. Adjust each anchor leveling nut face to the same elevation.

4. Install CleanWash™ onto the anchors. Adjust leveling nuts until unit is level in all directions. Finger-tighten locking nuts to secure bases in position. Make sure the unit is level to allow for proper liquid drainage out of the drain pan before permanently tightening nuts.

IMPORTANT: Do not grout under support stands until final leveling is completed and verified.

5. Install inlet hopper, if inlet hopper was not assembled during step 1.

6. Attach the discharge pipe(s) as shown on the equipment drawing using the supplied bolts. Confirm that the discharge pipe will drop solids as shown on the General Arrangement drawing(s). If pipe supports are provided, install and anchor as shown on the General Arrangement drawing(s).

7. If required, install the motor to the reducer using the provided bolts listed on the General Assembly drawing(s). Be sure to engage the motor and reducer shaft couplings with the spider.

8. If required, install the solenoid valves to the spray wash connection. Unions and ball valves (not by WesTech) should be used on adjacent piping to facilitate future maintenance of the solenoid valves.

9. If required, install “piping” to the drain outlet(s), drain “piping”, not by WesTech.

10. If the screen is directly depositing solids into the CleanWash™, make sure that the transition chute is aligned to accept all of the solids. If the screen is a pivoting design, take care to insure that the CleanWash™ is positioned as necessary to allow the screen to pivot without moving the entire CleanWash™ unit, if possible, so that the screen may be more easily maintained. Removal of the washer inlet hopper may be necessary.

11. A qualified electrician should wire the CleanWash™ drive motor and spray wash solenoid(s). Ensure that the drive shaft rotates in the proper direction so as to cause the screw to convey and compact material through the discharge pipe.

12. In order to avoid corrosion, touch-up any paint or galvanizing damaged during installation.

PIPING AND ELECTRICAL

Unless specifically mentioned in this manual, all piping for connecting spray wash is by others.

All wiring external to motors and controls is by others.

CONTROL PANEL (IF PROVIDED)

1. Install the electrical control panel in desired location.

   A. Complete external wiring to motor, spray wash solenoid(s) and any additional components as indicated on the Control Panel drawing(s). Jog the motor to confirm proper rotation direction; switch two leads to correct the direction, if necessary.

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3 START-UP AND OPERATION

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GENERAL SAFETY INSTRUCTIONS

1. Only trained operators who have been schooled in safety procedures should be allowed to work on, or around, this equipment. Exercise caution at all times. Allow access to authorized personnel only.

2. Anyone entering the area should be wearing adequate safety equipment, such as safety glasses, safety shoes, hard hats, etc. Long hair and loose clothing must be tied back, and jewelry must be removed.

3. To prevent personal injury, the CleanWash™ must be shut down before any maintenance or adjustments requiring personal contact are made. If the unit is opened for inspection, cleaning or observation, the motor must be locked out electrically in such a manner that it cannot be restarted by anyone during the inspection, cleaning, or observation.

4. Locate "WARNING" signs to alert people of moving parts. Keep hands, clothing, etc. away from all moving parts.

5. Keep all flammable or explosive materials away from the equipment area at all times.

6. Keep people whose abilities may be impaired due to drinking alcohol, using drugs, taking medication, etc. away from the equipment.

7. Inspect equipment frequently for loose bolts, leaks, or other malfunctions. Problems should be fixed immediately.

8. Do not walk on conveyor covers or guards.

9. Do not poke or prod material in the conveyor unless the drive is off and power has been locked-out.

10. Do not place hands, feet, or any other object in any conveyor opening.

11. The helical auger will act as a torsional spring and store a tremendous amount of energy if it becomes caught or jammed. This could cause serious injury or death if released suddenly. Ensure that no energy is stored in the auger before performing any maintenance on the equipment.

START-UP AND OPERATION

1. Be sure the mechanisms (all drives, bearings, etc.) are lubricated in accordance with the lubrication instructions in this manual.

2. Before the equipment is operated, a final mechanical checkout should be performed. **All fasteners, piping, and other connections must be verified as tight**. All moving parts must be properly aligned. To ensure that there is no binding or misalignment in the systems, rotate the conveyor slowly by hand, apply power only momentarily, and check for any problems.

3. In start-up of the CleanWash™ Screenings Washer, operate several minutes empty as a break-in period. Observe any abnormal heat build-up, unusual noises, or drive misalignment. Should any of these occur, check the following and take necessary corrective steps.

   a) Check for proper lubrication of the thrust bearing. Insufficient or excess lubricant may be the cause of above normal operating temperatures.

4. Begin normal operation. Do not overload the washer/compactor. Do not exceed the unit capacity for which it is designed.

IMPORTANT: The CleanWash™ Screenings Washer is not designed to be run continually.

5. Normal operation: The unit will accept screened solids in the inlet section. After accepting an amount of screenings, a wash cycle will initiate. The amount of solids in the trough should be 1/3 to ½ of full trough loading. This can be controlled using an accumulative timer on the screen or feed conveyor motor run contact.

6. The wash cycle will be configured to wash the screenings that have accumulated in the inlet section. The spiral will run intermittently to compact screenings into the solids plug, and then allow the spray wash system to wash away organics. If provided, see the Control Panel drawing(s) for specific control logic.

7. Before operating the equipment, complete the following steps:

   A. Set the spiral to HAND mode to confirm proper direction. If the spiral is reversed, then the electrician should reverse two of the motor leads.

Refer to the Control Panel drawing(s) (if provided) in this manual for directions on how to program/adjust the timers (if provided).

   B. The automatic spray wash system operates in conjunction with the motor in the AUTO mode. When the motor is operating intermittently during the wash cycle, the spray wash

solenoid opens during the motor dwell time. When the motor stops, the solenoid closes and the washing system stops.

C. A 3/4” NPT water connection is included to wash out the drain pan. This can be operated with opening the 3/4" manual ball valve. The operating frequency and duration for the manual system must be determined by field conditions. However, at a minimum, it is suggested that it be operated once daily for about 20 seconds. If provided, an automatic solenoid valve can be used in conjunction with a repeat cycle timer. The solenoid valve should run 20 seconds every 24 hours. The OFF time will require field adjustment to accommodate actual site conditions.

The following safety features are built into the control panel:

A. If a motor overload should occur, the CleanWash™ will shut down. The operator will then have to reset the controls. Place all switches in the OFF position prior to pushing the “Overload Reset” button (located on the motor starter). Once the Overload Reset button has been pressed, place all other switches in the AUTO position.

B. If the Emergency Stop button has been pushed (disengaged), the CleanWash™ will shut down. The controls will need to be reset before operating the equipment. Place all switches in the OFF position prior to pulling (engaging) the Emergency Stop button. Once the Emergency Stop button has been reset (engaged), place all other switches in the AUTO position.

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4 MAINTENANCE AND PARTS

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EQUIPMENT MAINTENANCE

1. **All fasteners should be checked regularly and tightened as required.**

2. Keep the equipment and surroundings clean.

3. Inspect all painted and galvanized surfaces frequently to check for corrosion. Remove any rust found and apply touch-up paint. All painted steel should be inspected once every year and repainted if required.

4. Corrosion may start to appear even on high-grade stainless steels due to external rust or rust films, dirt, chemical or similar residues that settle on the surface and corrode. Dirty stainless steel surfaces should be cleaned regularly as part of regular maintenance. Stainless steel surfaces should be treated with Stainless Shine™ surface cleaner/protector or an equivalent agent that DOES NOT contain hydrochloric acid and/or chlorides.

5. If the mechanism is to be shut down for an extended period of time, the Storage and Shutdown Precautions must be followed.

6. The equipment must be routinely lubricated according to the schedule on the following page and the accessory item instructions enclosed. Failure to do so will shorten the lifetime of the equipment and void the equipment warranty.

7. **Regularly check the inlet trough to make sure that water is properly draining. This can be done by visually inspecting through the inlet hopper or opening. High concentrations of grease in the influent will necessitate more frequent inspection.**

8. The equipment should be checked regularly for unusual sounds, irregular motion, or other signs of improper operation. If any of these symptoms are discovered, it must be investigated immediately to determine the source of the problem. The mechanism must not be allowed to operate if such problems exist.

9. The following maintenance procedures are indicated below:

   A. Removal of Inpection cover(s)
   B. Maintenance of the Spray System

INSPECTION COVER REMOVAL

Prior to working on equipment, power supply to the gearmotor is to be disconnected in a manner which will disallow anyone from reconnecting power without the knowledge of the person who is performing the maintenance.

In order for inspecting and troubleshooting, removal of the inspection covers, inlet hopper, and discharge piping may need to be removed. Below is a diagram of the inspection covers. Inspection covers should be free from foreign objects (customers piping, conduit, etc…) as to not limit access to these covers. Remove covers by removing the screws.

When opening the covers, the area may need to be rinsed and cleaned to visually see components or obstructions. Replace covers, inlet hopper, and discharge pipe when the unit is ready to be restarted for operation.

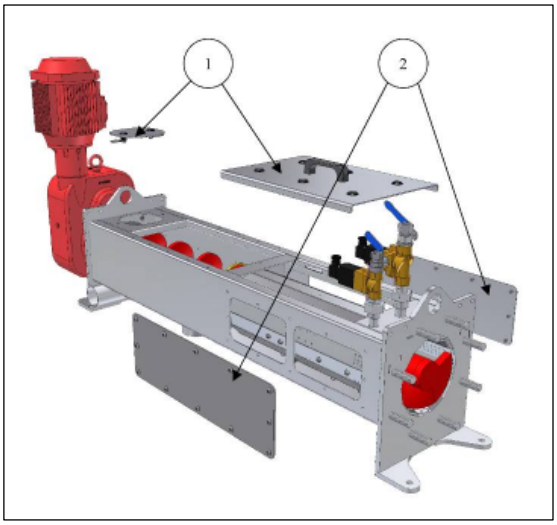


Figure 4-1: CleanWash™ Inspection Covers

MAINTENANCE OF THE SPRAY SYSTEM

Prior to working on equipment, power supply to the gearmotor is to be disconnected in a manner which will disallow anyone from reconnecting power without the knowledge of the person who is performing the maintenance.

Clean the strainer filter, if necessary.
Inspect the operation of each solenoid valve. If the solenoid valve is not working properly the valve may need to be cleaned or replaced. Most solenoid valves have a rebuild kit available. Refer to manufacturers instructions for repairing the solenoid valve
Inspect operation of each nozzle to confirm unobstructed operation.

Make sure that all connections are free of any leaks.

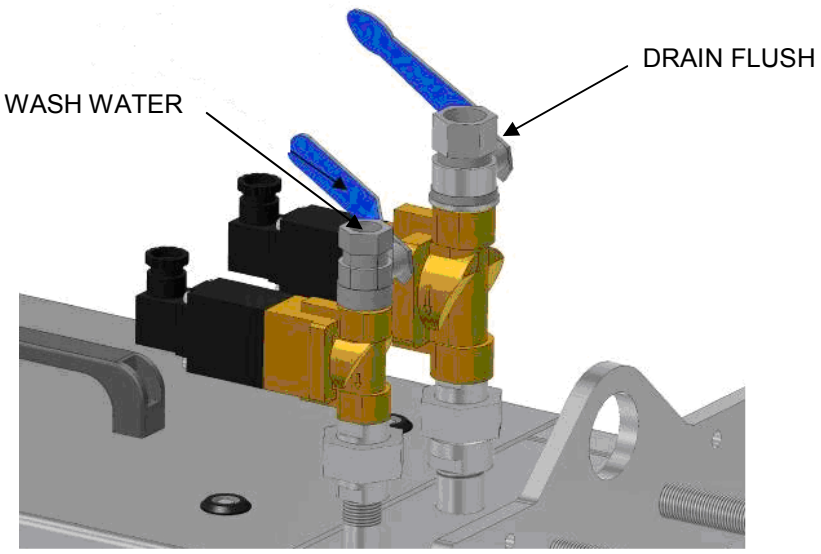


Figure 4-2: CleanWash™ Spray System

RECOMMENDED EQUIPMENT MAINTENANCE SCHEDULE

DESCRIPTION	CHECK FOR	INTERVAL	ACTION	TOOLS
General Inspection	Abnormal Noise Vibration	Daily		
Machine Cleanliness	Carbon Contamination	Daily	Clean	
Machine Control	Proper operation	Daily		
Inlet Zone	Proper Drainage	Daily	Clear drain	
Spray Wash	Proper function	Weekly		
Discharge Pipe	Unobstructed Discharge	Weekly	Unplug, if necessary	
Screw, Reducer & Motor	Vibration & Noise	Monthly	Repair or Replace	Wrench
Fasteners	Tightness	6 Months	Tighten	Wrench
Scrapers	Wear & Tear	Yearly	Replace (See Scraper Replacement)	Wrench
Wear Bars	Wear & Tear	Yearly	Replace (See Wear Bar Replacement)	Wrench
Reducer	Lubrication	Yearly	Lubricate (if required) (See Accessory Equipment Section)	Wrench

If the mechanism is to be shut down for an extended period of time, the Storage and Shutdown Precautions must be followed.

The equipment must be routinely lubricated according to the schedule on the following page and the accessory item instructions enclosed. Failure to do so will shorten the lifetime of the equipment and void the equipment warranty.

The equipment should be checked regularly for unusual sounds, irregular motion, or other signs of improper operation. If any of these symptoms are discovered, it must be investigated immediately to determine the source of the problem. The mechanism must not be allowed to operate if such problems exist.

LUBRICATION SCHEDULE

Description	Lube Type	Fill Amount	Check / Change
Reducer	Synthetic Oil	See Gearmotor Section	See Gearmotor Section

NOTE: 1 ounce (VOLUME) is considered in this section to be approximately 5 shots. The operator will need to determine for his/her own grease gun exactly how many shots of grease equals 1 ounce (VOLUME) of grease and adjust the number of shots accordingly to allow for the correct volume of grease as noted above to be applied to each particular component. 1 ounce (VOLUME) is equal to 2 tablespoons (almost 2 cubic inches).

STORAGE AND SHUTDOWN PRECAUTIONS

SHUTDOWN OF SCREENINGS WASHER

To shut down the CleanWash™ Washer/Compactor, stop the equipment delivering solids to the unit and lock out power to motor. If the unit is to be inoperative for a prolonged period of time, remove all material from the discharge piping. The solids in the discharge piping can dry out further.

Check that all valves and drains are tightly closed and that the gearmotor is operating normally.

STORING BEFORE INSTALLATION

It is preferable to store mechanical and electrical items indoors in a dry, well-ventilated enclosure with a temperature as constant as possible. The equipment should also be adequately supported to prevent distortion and undue stresses. It should be at least six inches off the floor.

The following instructions also apply if there is to be a period of time between installation and start-up or between start-up and the equipment going on stream. These steps are required to protect against corrosion and assure operating condition.

Whether stored indoors or outdoors, the following steps should be taken:

SHORT TERM STORAGE OR SHUTDOWN
(From 30 to 120 days)

Cover with a tarpaulin that allows adequate ventilation, drainage, and inspection access in an area protected against wind, direct sunlight, rain, and snow.

At least once a month, re-lubricate all items that are grease lubricated and grease exterior surfaces of all seals. Inspect all of the equipment for signs of corrosion and take corrective steps as required.

LONG TERM STORAGE OR SHUTDOWN
(Over 120 days)

In addition to those steps shown under "Short Term", the following steps should be taken whether storage is indoors or outdoors:

Periodic checks, frequency dependent upon ambient conditions, must be made of painted surfaces for deterioration of paint. Wide variations in ambient temperatures are conducive to condensation with its resultant oxidation. Steps should be taken to protect the affected surfaces. Bitumastic coatings tend to become brittle and to chip. Increasing ventilation and reducing humidity are frequently required. Where equipment is well covered and protected, inspection doors, covers, etc. should be blocked open slightly to increase ventilation. Relatively small areas and shafts can be coated with a waterproof grease or rust inhibitor.

MOTOR TROUBLESHOOTING GUIDE

SYMPTOMS	CAUSE	RESULT	REMEDY
1. MOTOR DOES NOT START	A. INCORRECTLY CONNECTED	A. BURNOUT	A. CONNECT CORRECTLY PER DIAGRAM ON MOTOR
	B. INCORRECT POWER SUPPLY	B. BURNOUT	B. USE ONLY WITH CORRECT RATED POWER SUPPLY
	C. FUSE OUT, LOOSE OR OPEN CONNECTION	C. BURNOUT	C. CORRECT OPEN CIRCUIT CONDITION
	D. OPEN CONTROL CIRCUIT	D. NONE	D. CORRECT OPEN CIRCUIT CONDITION
	E. ROTATING PARTS OF MOTOR MAY BE JAMMED MECHANICALLY	E. BURNOUT	E. CHECK AND CORRECT: 1. BENT SHAFT 2. BROKEN HOUSING 3. DAMAGED BEARING 4. FOREIGN MATERIAL IN MOTOR
	F. DRIVEN MACHINE MAY BE JAMMED	F. BURNOUT	F. CORRECT JAMMED CONDITION
	G. NO POWER SUPPLY	G. NONE	G. CHECK FOR VOLTAGE AT MOTOR AND WORK BACK TO POWER SUPPLY
2. MOTOR STARTS BUT DOES NOT COME UP TO SPEED	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE
	B. OVERLOAD	B. BURNOUT	B. REDUCE LOAD TO BRING CURRENT TO RATED LIMIT. USE PROPER FUSES AND OVERLOAD PROTECTION
3. MOTOR NOISY ELECTRICALLY	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE
4. MOTOR RUNS HOT (EXCEEDS RATING)	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE	A. SAME AS 1- A,B,C ABOVE
	B. OVERLOAD	B. BURNOUT	B. REDUCE LOAD
	C. IMPAIRED VENTILATION	C. BURNOUT	C. REMOVE OBSTRUCTION
	D. FREQUENT START OR STOP	D. BURNOUT	D. 1. REDUCE NUMBERS OF STARTS OR REVERSALS 2. SECURE PROPER MOTOR FOR THIS DUTY

	E. MISALIGNMENT BETWEEN ROTOR AND STATOR LIMITATIONS	E. BURNOUT	E. REALIGN
5. NOISY MECHANICALLY	A. MISALIGNMENT OF COUPLING OR SPROCKET	A. BEARING FAILURE, BROKEN SHAFT, STATOR BURNOUT DUE TO MOTOR DRAG	A. CORRECT MISALIGNMENT
	B. MECHANICAL IMBALANCE OF ROTATING PARTS	B. SAME AS 5-A	B. FIND UNBALANCED PART, THEN BALANCE
	C. LACK OF OR IMPROPER LUBRICANT	C. BEARING FAILURE	C. USE CORRECT LUBRICANT, REPLACE PARTS AS NECESSARY
	D. FOREIGN MATERIAL IN LUBRICANT	D. SAME AS 5-C	D. CLEAN OUT AND REPLACE BEARINGS
	E. OVERLOAD	E. SAME AS 5-C	E. REMOVE OVERLOAD CONDITION, REPLACE DAMAGED PARTS
	F. SHOCK LOADING	F. SAME AS 5-C	F. CORRECT CAUSES AND REPLACE DAMAGED PARTS
	G. MOUNTING ACTS AS AMPLIFIER OF NORMAL NOISE	G. ANNOYING NOISE	G. ISOLATE MOTOR FROM BASE
	H. ROTOR DRAGGING DUE TO WORN BEARINGS, SHAFT, OR BRACKET	H. BURNOUT	H. REPLACE BEARINGS, SHAFT, OR BRACKET AS NEEDED
6. BEARING FAILURE	A. SAME AS 5-A,B,C,D,E	A. BURNOUT, DAMAGED SHAFT, DAMAGED HOUSING	A. REPLACE BEARINGS AND FOLLOW 5-A,B,C,D,E
	B. ENTRY OF WATER OR FOREIGN MATERIAL INTO BEARING HOUSING	B. SAME AS 6-A	B. REPLACE BEARINGS AND SHIELD AGAINST ENTRY OF FOREIGN MATERIAL (WATER, DUST, ETC.) USE PROPER MOTOR

TYPICAL MOTOR BURNOUT PATTERNS

SYMPTOM	CAUSED BY	APPEARANCE
SHORTED COIL	MOISTURE, CHEMICALS, FOREIGN MATERIAL IN MOTOR, DAMAGED WINDINGS	BLACK OR BURNED COIL WITH REMAINDER OF WINDING GOOD
100% FAILURE	OVERLOAD STALLED IMPAIRED VENTILATION FREQUENT REVERSAL OR STARTING INCORRECT POWER	EQUALLY BURNED ALL AROUND WINDING
SINGLE PHASE CONDITION	OPEN CIRCUIT IN ONE LINE. THE MOST COMMON CAUSES ARE LOOSE CONNECTIONS, ONE FUSE OUT, LOOSE CONTACT IN SWITCH	IF 1800 RPM - FOUR EQUALLY BURNED GROUPS AT 90 DEGREE INTERVALS IF 1200 RPM - SIX EQUALLY BURNED GROUPS AT 60 DEGREE INTERVALS IF 3600 RPM - TWO EQUALLY BURNED GROUPS AT 180 DEGREES NOTE: IF Y CONNECTED, EACH BURNED GROUP WILL CONSIST OF TWO ADJACENT PHASE GROUPS. IF DELTA CONNECTED, EACH BURNED GROUP WILL CONSIST OF ONE PHASE GROUP
OTHER	IMPROPER CONNECTION GROUND	IRREGULAR BURNED GROUPS OR SPOT BURNS

EQUIPMENT TROUBLESHOOTING GUIDE

Tab. 8-1 Malfunctions and rectification

SYMPTOM	CAUSE	REMEDY
ABNORMAL NOISES	LOOSE COVERS	FASTEN COVERS
	SCREW SHAFT BEARING DEFECTIVE	REPLACE BEARING
	LOOSE MACHINE COMPONENTS	TIGHTEN SCREWS/BOLTS
	FOREIGN BODIES IN MACHINE	REMOVE FOREIGN BODIES
	GEAR UNIT DEFECTIVE	REPLACE DRIVE UNIT
VIBRATIONS	AMOUNT OF RAW SCREENINGS TOO HIGH	REDUCE AMOUNT OF RAW SCREENINGS
	SCREW SHAFT BEARING DEFECTIVE	REPLACE BEARINGS
	DRIVE MOTOR OVERLOADED	CHECK MOTOR CURRENT CONSUMPTION
	FOREIGN OBJECTS IN MACHINE	REMOVE FOREIGN OBJECTS
	LOOSE MACHINE ANCHORING	TIGHTEN MACHINE ANCHORING
MOTOR PROTECTION OF SCREW SHAFT DRIVE ACTIVATED	FOREIGN BODIES IN MACHINE	REMOVE FOREIGN BODIES
	SCREW SHAFT BEARING DEFECTIVE	REPLACE BEARING
	GEAR UNIT DEFECTIVE	REPLACE DRIVE UNIT
	LACK OF LUBRICANT IN GEAR UNIT	LUBRICATE COMPONENTS AS NECESSARY
	FRICTION IN DISCHARGE PIPE TOO HIGH	INSTALL DISCHARGE PIPE WITH REDUCED FRICTION FACTOR
MOTOR AND GEAR UNIT OVERHEATED	LACK OF LUBRICANT IN GEAR UNIT	LUBRICATE COMPONENTS AS NECESSARY
	SCREW SHAFT BEARING DEFECTIVE	REPLACE BEARING
	MOTOR IS CONNECTED INCORRECTLY	CORRECT CONNECTION
	FRICTION IN DISCHARGE PIPE TOO HIGH	INSTALL DISCHARGE PIPE WITH REDUCED BACKPRESSURE

SYMPTOM	CAUSE	REMEDY
SCREENINGS DISCHARGE STILL WET	DEWATERING ZONE CLOGGED	CLEAN LONGITUDINAL SLOTS
		CLEAN DISCHARGE BASE
SCREENINGS STILL CONTAMINATED AFTER WASHING PROCESS	WASHING SYSTEM CLOGGED	CLEAN WASHING SYSTEM
	WASHING PERIOD TOO SHORT	EXTEND RUNNING PERIOD
	WASH WATER SUPPLY INSUFFICIENT	CHECK CONSUMPTION WATER SUPPLY SYSTEM
HIGH DEGREE OF WEAR OF THE BASE ELEMENT COMPONENTS	VERY HIGH PERCENTAGE OF SAND IN SOLIDS	ESTABLISH CAUSE OF ACCUMULATING SAND AND RECTIFY
		INSTALL A SAND TRAP IN FRONT OF SCREEN SYSTEM
		INSTALL A SCREEN WITH A LARGER GAP/APERTURE
		INSTALL A VORTEX GRIT SYSTEM IN FRONT OF RAKE OR SCREEN SYSTEM
PRESS FLOODED	AMOUNT OF RAW SCREENINGS TOO HIGH	CHANGE SWITCH-ON VALUE OF RUNNING TIME ACCUMULATION
		CHANGE RUNNING TIMES
	DEWATERING ZONE CLOGGED	CLEAN PERFORATED PLATE
		CLEAN DISCHARGE BASE
		CHECK WASH AND DRAIN FLUSH SYSTEM

EXPLANATION OF PARTS LIST

ITEM NUMBERS

Item numbers identify a part shown on an erection or assembly drawing and correspond to the parts list item number. Item numbers are in circles on the drawing with an arrow pointing to the part. On the parts list, item numbers are found in the left most column of the list. Item numbers are three digit numbers. Most item numbers are shipped loose parts for installing in the field.

PART NUMBERS

Part numbers identify drawing numbers for shop drawings. Shop drawings are not included in operation and maintenance manuals. A Part Number that does not have a Drawing Number associated with the part is represented by a (-) dash.

GENERAL

Refer to the Enclosure Section of this manual for the job specific Parts List(s).

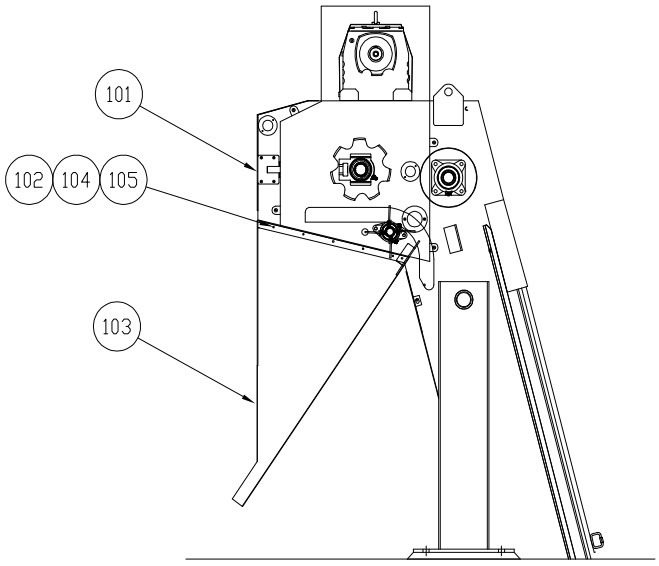


Figure 4-3: Sample Layout

		ASSEMBLY:	20039A	REV:	B	DWG #:	20039A-D101.DWG		
		PART DESCRIPTION:	ROSE HALL WWTP			DWG REV:	A		
		WRITTEN BY:	MWB		CHKD BY:	PCH	APP:	MJG	
		DATE:	1/25/2007		DATE:	1/25/2007	DATE:	1/25/2007	
ITEM	SP	PART NUMBER	DRAWING NUMBER	DWG REV	MATL CODE	PART DESCRIPTION	QTY	B/M	B/M REV
101	F	20039A-D102/A4	20039A-D102.DWG	0	SS	MAIN ASSEMBLY, CFKS75, 3X8, 6MM, LH	1	Y	A
102	F	WFL-037	-	-	304SS	WASHER, FLAT, 3/8"	17	N	-
103	F	20039A-D108/4	20039-D108.DWG	0	304SS	CHUTE, CFK	1	N	-
104	F	BHH-037C0125	-	-	304SS	CAPSCREW, HH, 3/8"-16 X 1 1/4" LG	15	N	-
105	F	WLO-037	-	-	304SS	WASHER, LOCK, 3/8"	15	N	-

Figure 4-4: Parts List Identification

REPLACEMENT OF GEARMOTOR

Prior to working on equipment, power supply to the gearmotor is to be disconnected in a manner which will disallow anyone from reconnecting power without the knowledge of the person who is performing the maintenance.

Fasten the lifting apparatus to the lifting eyebolt of the reducer.
Remove the flange screws of the drive unit at the motor support.
Remove the shaft screw.
Pull the reducer off of the drive shaft and lay it down carefully.

Clean the shaft and apply grease to the shaft before installing the reducer back onto the shaft.

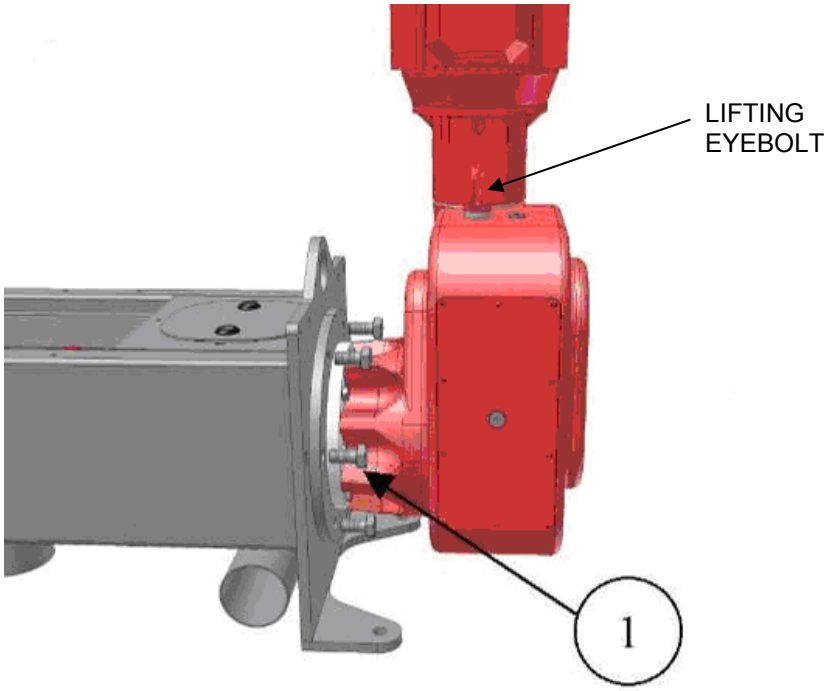


Figure 4-5: CleanWash™ Gearmotor Removal

REPLACEMENT OF THE SCRAPERS

Prior to working on equipment, power supply to the gearmotor is to be disconnected in a manner which will disallow anyone from reconnecting power without the knowledge of the person who is performing the maintenance.

Before replacing and ordering the scraper, be sure to check the wear on the wear bars, in case the wear bars need to be replaced at the same time. Refer to replacement of the wear bars.

In order to inspect and replace the trough scraper plate and scraper strip, the inlet hopper may need to be removed. The trough scraper in Figure 4-6 is located on the spiral, in the inlet zone, near the washing and discharging area. The scraper strip is located on both sides of spiral in the inlet zone.

When the trough scraper is worn down to 2-3 millimeters (1/16”-3/32”) from the spiral, the scrapers will need to be replaced. Remove the screws and replace the scrapers. Reuse the Trough Scraper Plate for the spriral and the 6mm screws.

When the scraper strips are worn down to 2-3 millimeters (1/16”-3/32”) the scraper strip will need to be replaced.

Note: Sand and small particles may shorten the life span of the wear bars, scraper, and the spiral. If the application has excessive amount of small particles, more frequent inspection of the parts may be required.

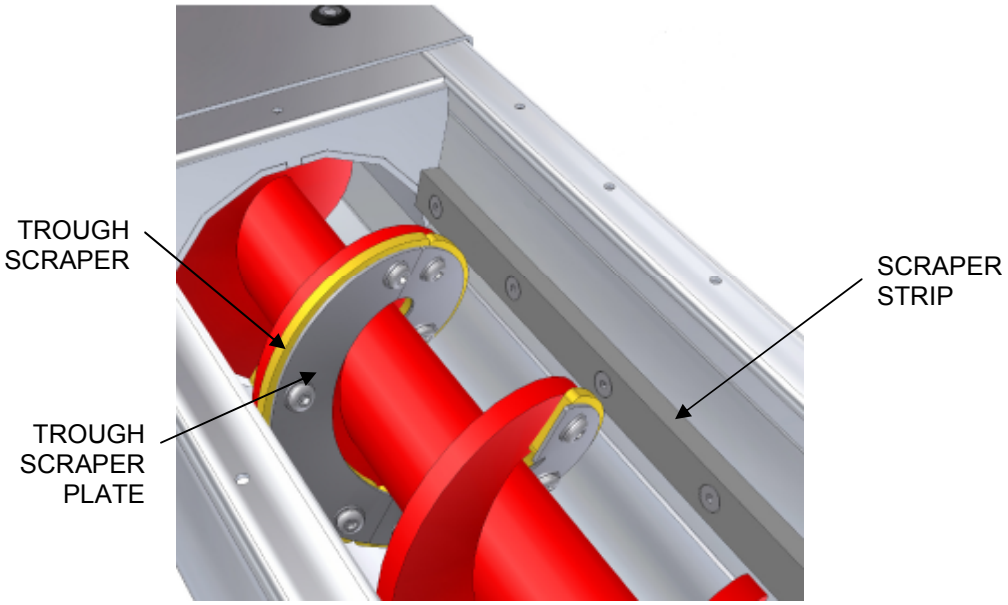


Figure 4-6: CleanWash™ Scrapers

REPLACEMENT OF THE WEAR BARS

Prior to working on equipment, power supply to the gearmotor is to be disconnected in a manner which will disallow anyone from reconnecting power without the knowledge of the person who is performing the maintenance.

Before replacing and ordering the wear bars, be sure to check the wear on the scrapers, in case the scrapers need to be replaced at the same time. Refer to replacement of the scrapers. In order to inspect and replace the wear bars, the discharge piping may need to be removed. The wear bars in Figure 4-7 are located in the washing / dewatering zone. When the wear bars are less than 2mm (1/16”) thick, the wear bars will need to be replaced.

To change the wear bars:

1. Remove all inspection covers. Refer to Figure 4-1.
2. Loosen the bolts, Item 1, holding the gearbox to the unit. Refer to Figure 4-2.
3. Pull the Spiral Screw out of the trough. Figure 4-7.b
4. Remove the wear bar bolts Item 4 and remove old wear bars Item 5.
5. Replace and fasten the new wear bars.
6. Replace the spiral and fasten the gearbox to the unit.
7. Replace the inspection covers.

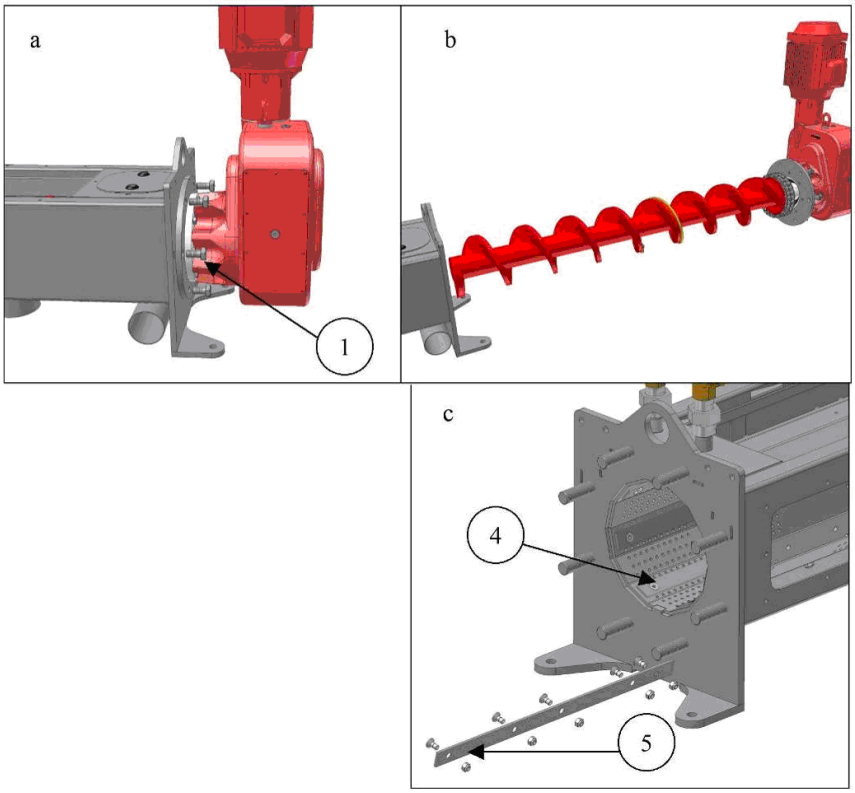


Figure 4-7: CleanWash™ Wear Bar Replacement

REPLACEMENT OR SPARE PARTS

Should you require further assistance in determining which spare parts are appropriate for your particular situation, please don't hesitate to contact WesTech PARTS SERVICES DEPARTMENT.

PROCEDURE FOR ORDERING REPLACEMENT OR SPARE PARTS:

Spare or replacement parts may be ordered from the Parts Services Department at:

WESTECH ENGINEERING, INC.
3625 SOUTH WEST TEMPLE
SALT LAKE CITY, UT 84115
PHONE: (801) 265-1000
FAX: (801) 265-1080

24-HOUR SERVICE/EMERGENCY:
(801) 265-1000 8:00 am to 5:00 pm
(801) 263-4093 5:00 pm to 8:00 am

E-MAIL ADDRESS:
parts@westech-inc.com

WEB ADDRESS:
www.westech-inc.com

If you would like to talk directly to a parts representative during normal business hours (8:00 am to 5:00 pm MST), dial (801) 265-1000 and ask for the Spare Parts Dept. You may Fax your order to (801) 265-1080

To use the 24-hour service/emergency line after hours (5:00 pm to 8:00 am), dial (801) 263-4093. Please indicate to the Answering Service Operator whether your facility is Water, Waste Water, or industrial. She will inform you that a WesTech representative will call and assist you with your problem.

If you would like to e-mail a parts order, simply e-mail your request to us at parts@westech-inc.com and a WesTech representative will process our order and follow up with an Order Acknowledgement.

Parts may also be ordered directly from our web page (www.westech-inc.com). Simply go to the web page, click on Parts and Service, click on Contact the WesTech Spare Parts Department and fill out the online form. A WesTech representative will process your order and follow up with an Order Acknowledgement, or a return phone call to confirm that your order has been received.

To avoid unnecessary delays in obtaining the correct spare or replacement parts for your equipment, be sure to give the following information with each order.

1. Identify equipment using the WesTech job number as indicated on the cover sheet.

2. Identify the part by name and give the number of the drawing on which this part or assembly appears. If it is a part of a motor, pump, electrical control, or any part not manufactured by WesTech Engineering, the information will be found in the manufacturer's reference data included in this manual, or on the manufacturer's nameplate.

3. Identify the part number and / or item number.

4. Identify the size, and include all pertinent dimensions (such as diameter, length, thickness, bore, pitch, etc.) whenever possible.

5. If parts being ordered are electrical in nature, give all pertinent data; voltage,

amperage, wattage, cycles, speed, power factor, or other information given on the part's nameplate or included in the part's brochure.

6. Submit your written purchase order or request for quotation. Be sure to **sign and print** your full name so that we will know whom to contact should further clarification of the inquiry be necessary. ALL VERBAL ORDERS MUST BE VERIFIED IN WRITING ON COMPANY LETTERHEAD.

7. Give a return address and a shipping address.

8. Give the preferred method of shipping (parcel post, truck freight, rail freight, air express, etc.).

9. Show the quantity desired.

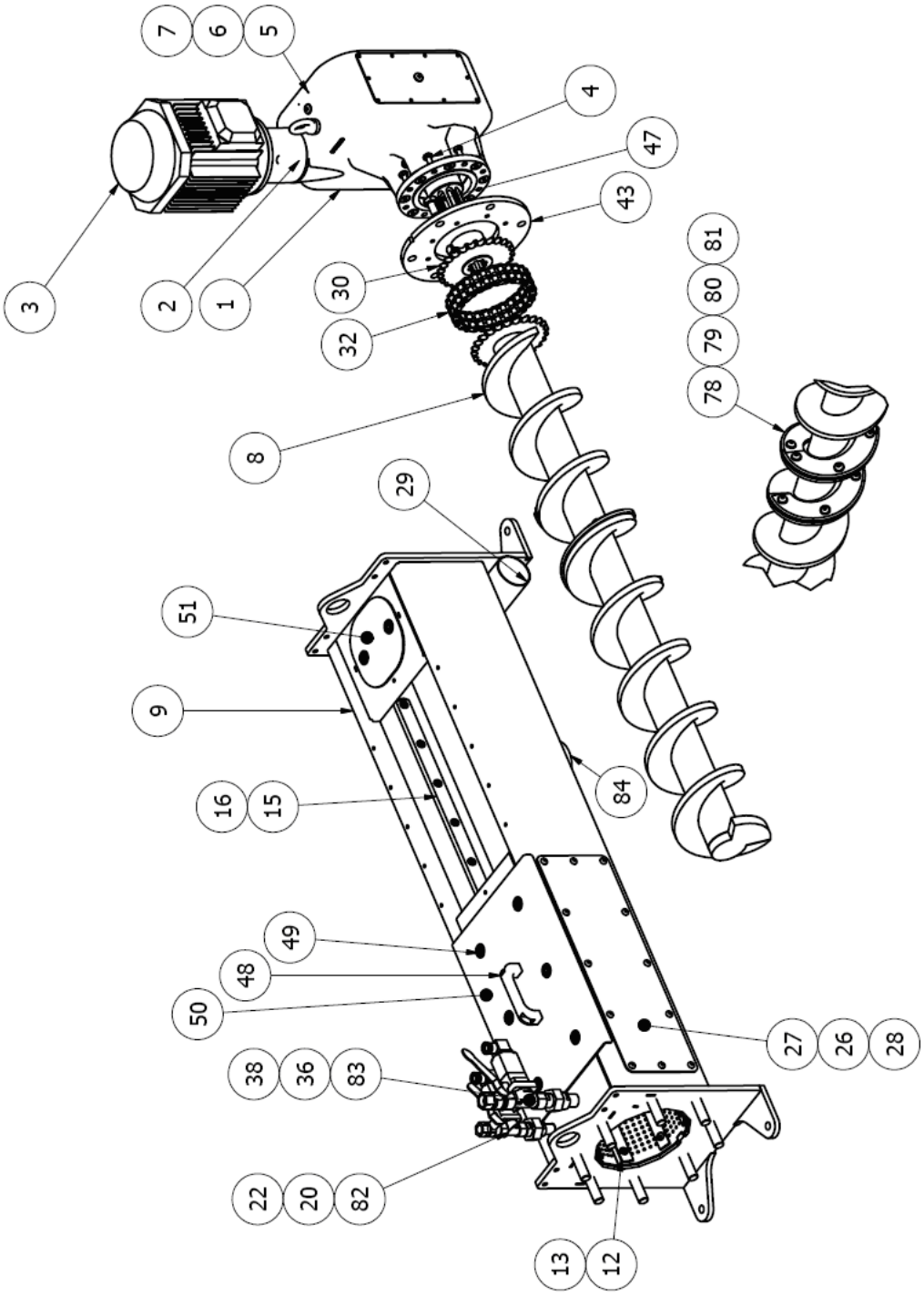
10. Provide instructions for proper invoicing.

11. All parts orders are subject to a $100.00 minimum order charge.

COMPONENT PARTS

Pos.	Name	Quantity
1	Gear box	1
2	Flexible coupling	1
3	Motor	1
4	Screw	1set
5	Oil plug	1
6	Oil filling cap	1
7	Oil level control plug	1
8	Transport screw*	1
9	Machine body*	1
10-11	*Vacant*	
12	Wear strips incl screw	1set
13	Screw	
14	*Vacant*	
15	Scraper strip*	
16	Screw*	
17-19	*Vacant*	
20	Solenoid valve, wash water	1
21	*Vacant*	
22	Ball valve, wash water	
23-25	*Vacant*	
26	Sealing for inspection cover, side	1
27	Inspection cover, side	2
28	Screw	
29	Plastic plug for reject water outlet, side	2

Pos.	Name	Quantity
30	Sprocket	1
31	*Vacant*	
32	Chain for chain coupling, incl lock	1
33-35	*Vacant*	
36	Solenoid valve, flush water	1
37	*Vacant*	
38	Ball valve, flush water	1
39-42	*Vacant*	
43	Flange for gear box	1
44-46	*Vacant*	
47	Screw	1
48	Handle	1
49	Lock	8
50	Inspection cover, front	1
51	Inspection cover, back	1
52-77	*Vacant*	
78	Trough scraper	3
79	Trough scraper plate	3
80	Screw	1set
81	Washer	1set
82	Union coupling, wash water	1
83	Union coupling, flush water	1
84	Plastic plug for reject water outlet, bottom	1


7
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5 ACCESSORY EQUIPMENT

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WESTECH AN EMPLOYEE OWNED COMPANY

GEAR REDUCER

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A3

ORIGINAL FORMAT
UR-SPRUNGS FORMAT

VYPLACERINGS METOD
1:ST ANGLE PROJECTION

E

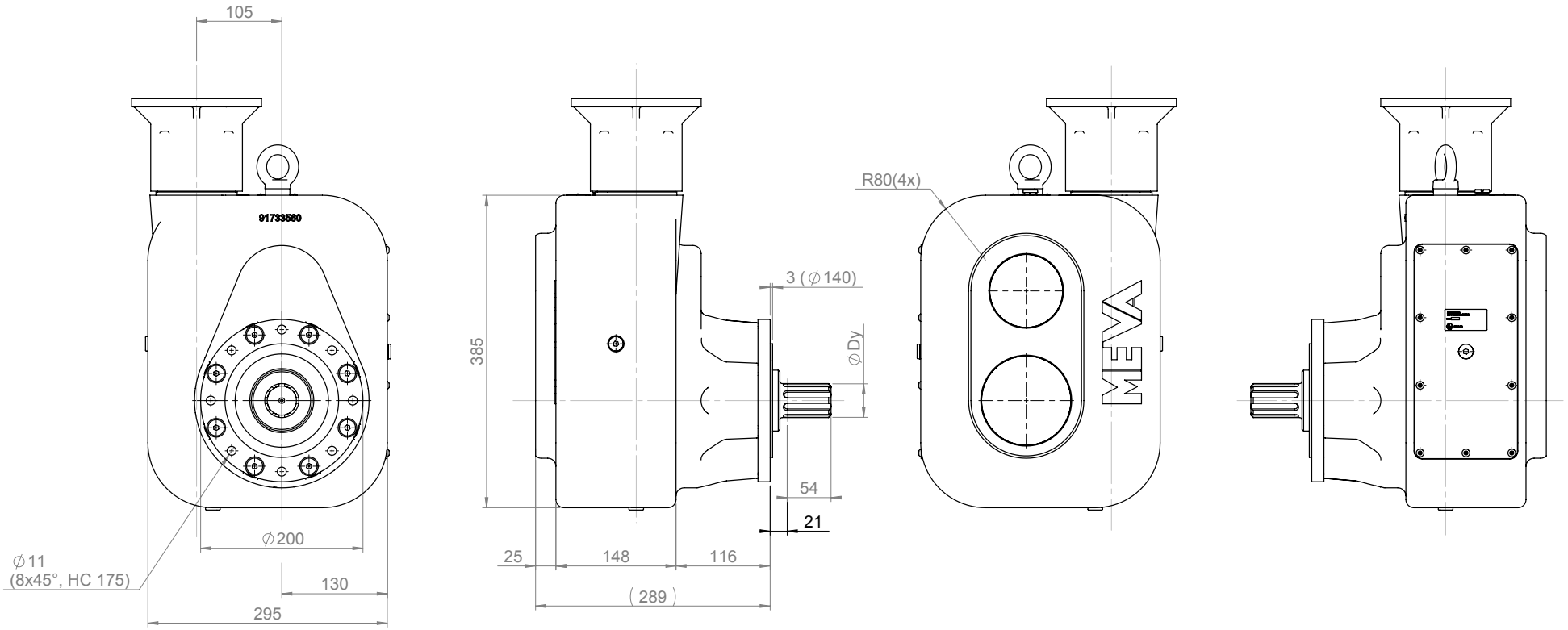
SENASTE ÄNDRING
4 071024 NLN

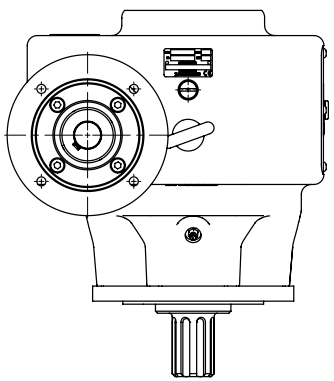
YTFINHET DÄR EJ ANNAT ANGES: Ra 6,3
SURFACE FINISH EXCEPT AS STATED:

TOLERANSER DÄR EJ ANNAT ANGES: ISO 2768-m
TOLERANCES EXCEPT AS STATED:

GÄNGSLÄPPNINGAR ENL. INS 135
DUBBHÅL ENL. INS 141

SLIPSLÄPPNINGAR ENL. INS 101
SKARPA KANTER BRYTES





4	DATATABELL / DATATABLE	
	VÄXEL TYP / GEAR TYPE	240
	CENTER DISTANCE C-C	105
	UTVÄXLING / RATIO	SE STYCKLISTA / SEE ITEMLIST
	SMÖRJMEDEL / LUBRICATION	MOBIL GLYGOYLE HE 460
	OLJEMÄNGD / OIL VOLUME	
	DISP 1XX	2.9 L
	DISP 2XX	4.9L
	DISP 3XX	7.0L
	ÅTDRAGNINGS-MOMENT TIGHTENING TORQUE	ENL. INS 127, OM INTE ANNAT ANGES. ACCORDING TO INS 127, IF NOT OTHERWISE STATED
	VIKT UTAN OLJA / WEIGHT WITHOUT OIL	CA: 70Kg

Ritad	Kontr	Godk	Skala	Ersätter	Ersatt av	Blad	Dat.
NLN			1:5	91733119		1 /3	070206

SWEDRIVE AB
S-340 14 LAGAN ,SWEDEN
TEL. 0372-265 00 TELEFAX 0372-265 49

SNÄCKVÄXEL MEVA 240

Ext. Ref.	Vikt kg
Nr. 91733123	Utg. 4.a

A3

ORIGINAL FORMAT
UR-SPRUNGS FORMAT

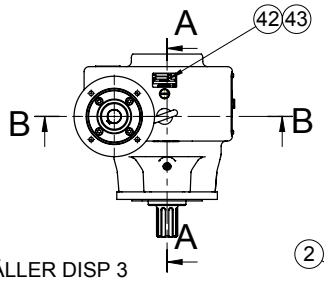
VYPLACERINGS METOD
1:ST ANGLE PROJECTION

SENASTE ÄNDRING
4 071024 NLN

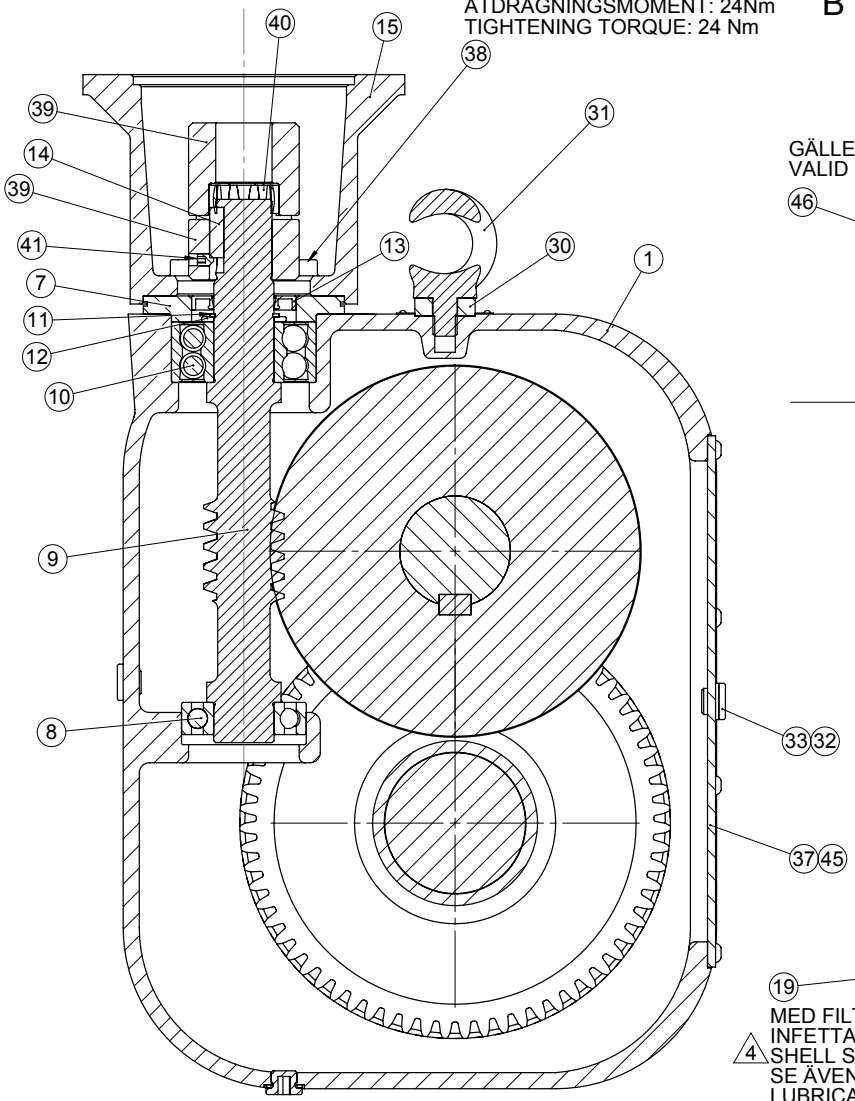
YTFINHET DÄR EJ ANNAT ANGES: Ra 6,3
SURFACE FINISH EXCEPT AS STATED:

TOLERANSER DÄR EJ ANNAT ANGES: ISO 2768-m
TOLERANCES EXCEPT AS STATED:

GÄNGSLÄPPNINGAR ENL. INS 135
DUBBHÅL ENL. INS 141
SLIPSLÄPPNINGAR ENL. INS 101
SKARPA KANTER BRYTES

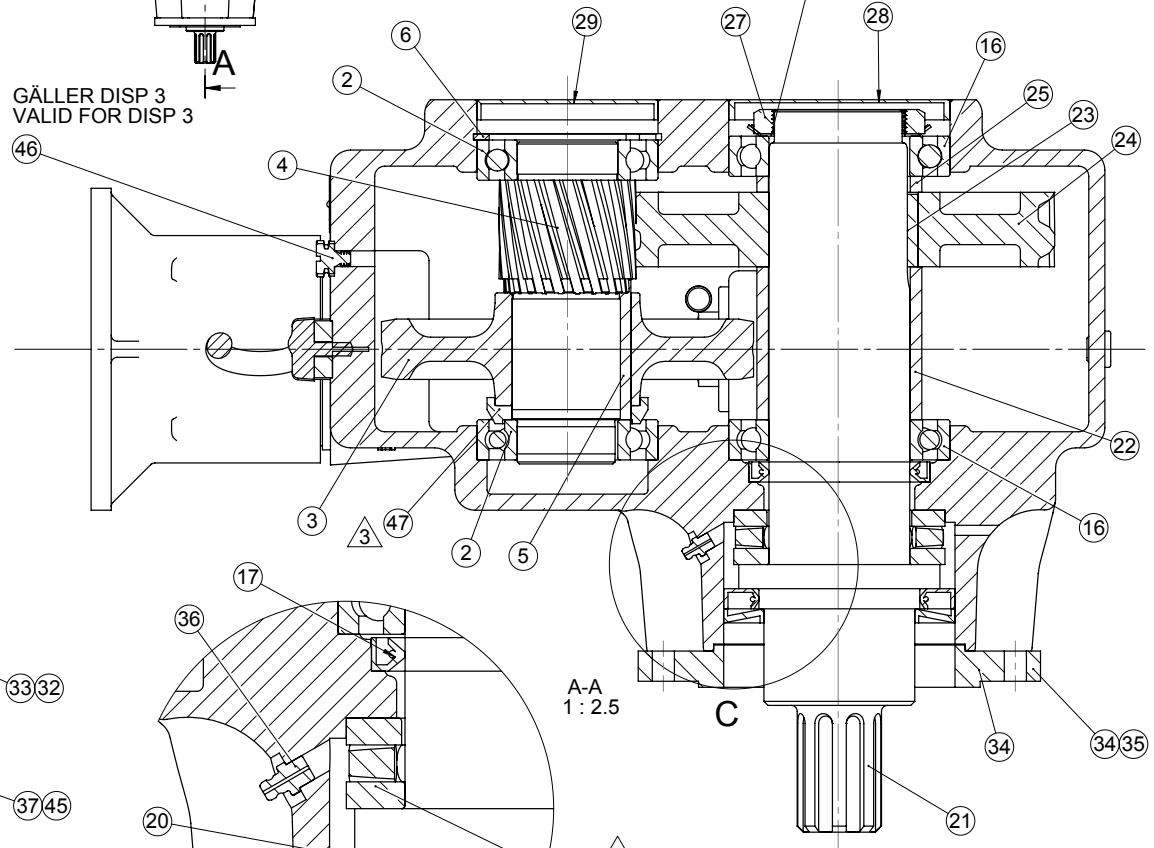


4 ÅTDRAGNINGSMOMENT: 24Nm
TIGHTENING TORQUE: 24 Nm



B-B
1 : 2.5

GÄLLER DISP 3
VALID FOR DISP 3



4 TILLSE ATT LÄPPEN PÅ BRICKAN GREPPAR I KILSPÅRET.
CHECK THAT WASHER I S PROPERLY LOCKED IN KEYWAY.

A-A
1 : 2.5

C

DETAIL C
1 : 1.5

4 MED FILTRING INFETTAS MED SHELL SRS4000
SE ÄVEN INS. FRÅN SKF.
LUBRICATE FELTRING WITH SHELL SRS 4000

4 LAGRET SMÖRJES MED KULLAGERFETT TILLS FETT TRÄNGER UT I DRÄNERINGSHÅLET.
LUBRICATE BEARING WITH BALLBEARING GREASE UNTIL IT COME OUT OF DRAIN HOLE

Ritad	Kontr	Godk	Skala	Ersätter	Ersatt av	Blad	Dat.
NLN			1:10	91733119		2 /3	070206

SWEDRIVE AB
S-340 14 LAGAN ,SWEDEN
TEL. 0372-265 00 TELEFAX 0372-265 49

SNÄCKVÄXEL MEVA 240

Ext. Ref.

Vikt kg

Nr. 91733123

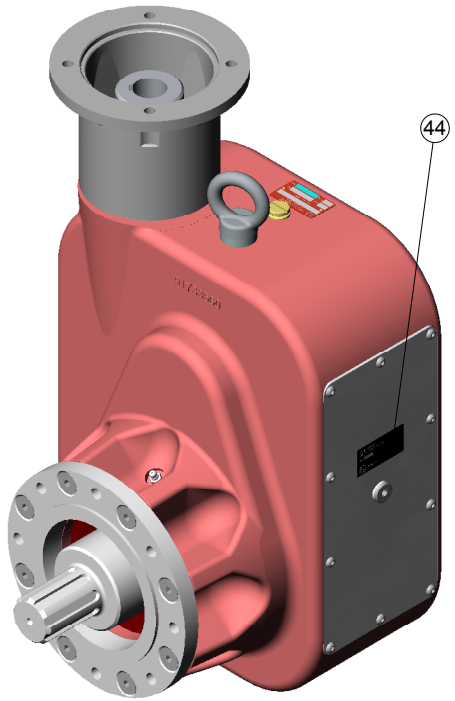
Utg. 4.a

A3

ORIGINAL FORMAT
UR-SPRUNGS FORMAT

VYPLACERINGS METOD
1:ST ANGLE PROJECTION

YTFINHET DÄR EJ ANNAT ANGES: SURFACE FINISH EXCEPT AS STATED: Ra 6,3
TOLERANSER DÄR EJ ANNAT ANGES: TOLERANCES EXCEPT AS STATED: ISO 2768-m
GÄNGSLÄPPNINGAR ENL. INS 135 DUBBHÅL ENL. INS 141
SLIPSLÄPPNINGAR ENL. INS 101 SKARPA KANTER BRYTES



3	1	1	1	1	1	1	1	47	08582201	DISTANS / SPACER RING 27.6x80/13	
	1	1	1	1	1	1	1	46	99980102	LUFTSKRUV / AIR SCREW 1/4	
	10	10	10	10	10	10	10	45	63050108	K6S 10,9 M5X10 FZB	
	1	1	1	1	1	1	1	44	65001248	MASKINSKYLT / MACHINE PLATE Ex	65000667
	2	2	2	2	2	2	2	43	63000058	DRIVNIT / RIVET KDS 0X5	
	1	1	1	1	1	1	1	42	65000158	MASKINSKYLT / MACHINE PLATE	TJOCKLEK 0,5 MM
	2	2	2	2	2	2	2	41	63060083	MSK6SS M6x8	
	1	1	1	1	1	1	1	40	72240002	ROTEX 24-92 KORS VIT / SPIDER WHITE	
	2	2	2	2	2	2	2	39	72242128	ROTEX 24 AL-D 28, 24/28	
	4	4	4	4	4	4	4	38	63080351	MC6S 8.8 M8x35 FZB	
	1	1	1	1	1	1	1	37	91733681	LOCK / COVER	
	1	1	1	1	1	1	1	36	63000079	SMÖRJNIPPEL / GREASE NIPPLE M8x1,25	
	8	8	8	8	8	8	8	35	63100502	MF6S M10x50	
	1	1	1	1	1	1	1	34	91733701	MELLANRING / SPACER RING	
	4	4	4	4	4	4	4	33	63140007	OLJEPLUGG / DRAIN PLUGG DIN 908 R1-4	
	4	4	4	4	4	4	4	32	62012165	PACKNING / GASKET 13,2X18	
	1	1	1	1	1	1	1	31	65000330	LYFTÖGLA / LIFTING EYE M12	
	1	1	1	1	1	1	1	30	91733711	DISTANS / SPACER RING 12,5x30x9	
	1	1	1	1	1	1	1	29	62090126	TÄTNINGSLOCK / TIGHTENING COVER 90X10	
	1	1	1	1	1	1	1	28	62110116	TÄTNINGSLOCK / TIGHTENING COVER 110x12	
	1	1	1	1	1	1	1	27	63130034	KM-MUTTER / KM-NUT KM 13	
	1	1	1	1	1	1	1	26	63130000	MB-BRICKA / MB-WASHER MB13	
	1	1	1	1	1	1	1	25	10580202	DISTANS / SPACER RING 70x82/7.9	
	1	1	1	1	1	1	1	24	10555201	KUGGHJUL / WORM/WHEEL F240	
	1	1	1	1	1	1	1	23	64181369	KIL / KEY RTK 18X11X36	
	1	1	1	1	1	1	1	22	10580204	DISTANS / SPACER RING 70x82/76.0	
2			1					21	91733543	AXEL / SHAFT S240 T D42 RF	
	1			1		1		21	91733542	AXEL / SHAFT S240 T D54	
		1			1		1	21	91733541	AXEL / SHAFT S240 T D42	
	1	1	1	1	1	1	1	20	62815100	TÄTRING / OILSEAL 80X115X10	
	1	1	1	1	1	1	1	19	62000015L	LAMELLTÄTNING / SEAL Z015	
	1	1	1	1	1	1	1	18	60812140	AXIALRULLLAGER / AXIAL ROLLER BEARING 81214	
	1	1	1	1	1	1	1	17	62709000	TÄTRING / OILSEAL 70x90x10	
	2	2	2	2	2	2	2	16	60060140	SPÅRKULLAGER / BALLBEARING 6014	
	1	1	1	1	1	1	1	15	8570601	FLÄNS PRI / INPUT FLANGE H85-130	
	1	1	1	1	1	1	1	14	64087250	KIL / KEY RK 8X7X25	
	1	1	1	1	1	1	1	13	62305271	TÄTRING / OILSEAL 30X52X7 DT	
	1	1	1	1	1	1	1	12	64300427	STÖDRING / SUPPORT WASHER 30x42x2,5	STÅL
	1	1	1	1	1	1	1	11	64000305	SPÄRRING / CIRCLIP SGA 30	
	1	1	1	1	1	1	1	10	60033064	TVÅRAD VINKELKULLAGER / BEARING 3306A	
	1	1	1	1	1	1	1	9	105201XX	SKRUV / WORM SCREW T	
	1	1	1	1	1	1	1	8	60062060	KULLAGER / BALLBEARING 6206	
	1	1	1	1	1	1	1	7	10560101	PRIM LOCK / COVER 52x100/85	
	1	1	1	1	1	1	1	6	64000906	SPÄRRING / CIRCLIP SgH 90	
	1	1	1	1	1	1	1	5	64160700	KIL / KEY RK 16X10X70	
	1	1	1	1	1	1	1	4	10556301	KUGGAXEL / COG AXEL F240	
	1	1	1	1	1	1	1	3	105541XX	HJUL / WORM/WHEEL F105-XXX D=55H7	
	2	2	2	2	2	2	2	2	60062100	SPÅRKULLAGER / BALLBEARING 6210	
	1	1	1	1	1	1	1	1	91733561	HUS / GEARCASE S240-F0 T	ÄMNE: 91733560
	ANT.	ANT.	ANT.	ANT.	ANT.	ANT.	ANT.	POS	ART.NR. / ITEM NO.	BENÄMNING / DESCRIPTION	ANMÄRKNING / REMARK
	82:1 XX=72	82:1 XX=72	65:1 XX=63	97:1 XX=62	97:1 XX=62	65:1 XX=63	65:1 XX=63	UTV.			
	917331237 SPLINESAXEL Dy=53.9	917331236 SPLINESAXEL Dy=41.9	917331235 SPLINESAXEL RF Dy=41.9	917331234 SPLINESAXEL Dy=53.9	917331233 SPLINESAXEL Dy=41.9	917331232 SPLINESAXEL Dy=53.9	917331231 SPLINESAXEL Dy=41.9	ART.NR			
	3	3	2	1	1						

Ritad	Kontr	Godk	Skala	Ersätter	Ersatt av	Blad	Dat.
NLN			1:3	91733119		3 /3	070206

SWEDRIVE AB
S-340 14 LAGAN ,SWEDEN
TEL. 0372-265 00 TELEFAX 0372-265 49

SNÄCKVÄXEL MEVA 240

Ext. Ref.	Vikt kg
Nr. 91733123	Utg. 4.a

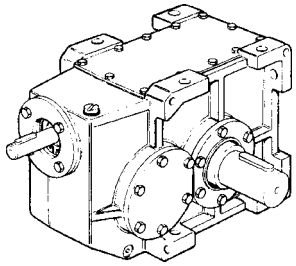
SENASTE ÄNDRING 071024 NLN
4

F240 DATA TABLE/DATENTABELLEN

Ratio code Übers Code	Input speed Antr. Drehz. **1/min**	Max input power Max Antr. leistung **kW**	Max output. torque Max Ausg. moment **Nm**	Effi-ciency Wirk. grad **ca %**	Ord. no. gear Best.Nr. Getriebe	Output speed Ausg. drehz. **1/min**	Motor power Motor leistung **kW**	Recommended motor/Empfählte motoren Output torque Ausgangs moment **Nm**	Motor & flange Motor & Flansch
28 A0**	2800	8,7	685	83		100	4,0	315	112A-2F130
	1400	5,9	910	81	F240A0	50	4,0	617	112A-4F130
	900	4,3	975	79		32	2,2	499	112A-6F130
	700	3,8	1130	78		25	1,5	446	112A-8F130
38 BO**	2800	6,9	730	82		74	4,0	423	112A-2F130
	1400	4,5	920	79	F240B0	37	4,0	818	112A-4F130
	900	3,4	1020	77		24	2,2	660	112A-6F130
	700	2,9	1145	76		18	1,5	592	112A-8F130
48 C0	2800	8,7	1190	83		58	4,0	547	112A-2F130
	1400	5,4	1440	81	F240C0	29	4,0	1067	112A-4F130
	900	3,6	1440	79		19	2,2	880	112A-6F130
	700	2,7	1440	78		14	1,5	800	112A-8F130
65 D0	2800	6,9	1270	82		43	4,0	736	112A-2F130
	1400	4,0	1440	79	F240D0	21	4,0	1440	112A-4F130
	900	2,8	1440	77		14	2,2	1131	112A-6F130
	700	2,0	1440	76		10	1,5	1080	112A-8F130
82 E0	2800	5,8	1315	80		34	4,0	907	112A-2F130
	1400	3,3	1440	77	F240E0	17	3,0	1309	100B-4F130
	900	2,2	1440	75		11	2,2	1440	112A-6F130
	700	1,7	1440	74		8,5	1,5	1271	112A-8F130
97 F0	2800	5,1	1350	78		28	4,0	1059	112A-2F130
	1400	2,8	1440	76	F240F0	14	3,0*	1543*	100B-4F130
	900	1,9	1440	74		9,3	2,2*	1667*	112A-6F130
	700	1,5	1440	72		7,2	1,5	1440	112A-8F130
118 G0	2800	3,9	1210	77		24	4,0*	1241*	112A-2F130
	1400	2,4	1440	75	F240G0	15	2,2	1320	100A-4F130
	900	1,6	1440	72		7,6	1,5	1350	100B-6F130
	700	1,3	1440	70		5,9	1,1	1218	100B-8F130
164 H0	2800	3,5	1440	73		17	3,0	1234	100B-2F130
	1400	1,9	1440	68	F240H0	8,5	2,2*	1667*	100A-4F130
	900	1,3	1440	65		5,5	1,1	1218	90A-6F115
	700	1,1	1440	62		4,3	1,1	1440	100B-8F130
194 I0	2800	3,0	1440	71		14	3,0	1440	100B-2F130
	1400	1,7	1440	66	F240I0	7,2	1,5	1271	90B-4F115
	900	1,1	1440	62		4,6	1,1	1440	90B-6F115
	700	0,9	1440	60		3,6	0,75	1200	100A-8F130
302 K0	2800	1,8	1330	66		9,3	1,5	1108	90A-2F115
	1400	1,2	1440	60	F240K0	4,6	1,1	1320	90A-4F115
	900	0,8	1440	56		3,0	0,75	1350	90A-6F115
	700	0,65	1440	54		2,3	0,55	1218	90B-8F115
341 L0	2800	1,6	1210	63		8,2	1,5	1134	90A-2F115
	1400	1,1	1440	57	F240L0	4,1	1,1	1440	90A-4F115
	900	0,75	1440	53		2,6	0,75	1440	90A-6F115
	700	0,6	1440	51		2,1	0,55	1320	90B-8F115
392 M0	2800	1,4	1100	58		7,2	1,5*	1179*	90A-2F115
	1400	1,0	1390	52	F240M0	3,6	1,1	1529	90A-4F115
	900	0,75	1440	48		2,3	0,75	1440	90A-6F115
	700	0,6	1440	45		1,8	0,55	1320	90B-8F115

*With some motors the duty factor is below 1,0. See ”Selecting the worm gear”, Page 10.

*Bei einigen Motoren liegt der Betriebsfaktor unter 1,0. Siehe ”Getriebeauswahl”, Seite 10.



ORDER SPECIFICATIONS – SEE PAGE 36

MOTOR

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BALDOR
A MEMBER OF THE ABB GROUP

BALDOR • RELIANCE

Product Information Packet

VECP3665T

5HP,1750RPM,3PH,60HZ,184TC,0643M,TEFC,F1

Part Detail							
Revision:	G	**Status:**	PRD/A	**Change #:**		**Proprietary:**	No
Type:	AC	**Prod. Type:**	0643M	**Elec. Spec:**	06WGW567	**CD Diagram:**	
Enclosure:	TEFC	**Mfg Plant:**		**Mech. Spec:**	06H480	**Layout:**	
Frame:	184TC	**Mounting:**	F1	**Poles:**	04	**Created Date:**	07-21-2006
Base:	N	**Rotation:**	R	**Insulation:**	F	**Eff. Date:**	06-21-2010
Leads:	9#16	**Literature:**		**Elec. Diagram:**		**Replaced By:**	

Nameplate NP1260E									
CAT.NO.	VECP3665T								
SPEC.	06H480W567G1								
HP	5								
VOLTS	230/460								
AMP	13/6.5								
RPM	1750								
FRAME	184TC	**HZ**	60	**PH**	3				
SER.F.	1.15	**CODE**	K	**DES**	B	**CL**	F		
NEMA-NOM-EFF	90.2	**PF**	80						
RATING	40C AMB-CONT								
CC	010A	**USABLE AT 208V**	13.7						
DE	6206	**ODE**	6206						
ENCL	TEFC	**SN**							

Parts List

Part Number	Description	Quantity
SA146838	SA 06H480W567G1	1.000 EA
RA135907	RA 06H480W567G1	1.000 EA
S/P107-000-001	SUPER E PROC'S-FS & WS PLTS-POLYREX EM G	1.000 EA
HW3201A05	3/8-16 EYEBOLT	1.000 EA
06CB1000A02G	CONDUIT BOX, MACH GRAY	1.000 EA
RM1016	LEAD SEPARATOR GASKET - 305/306 C.P.MOTO	1.000 EA
51XW2520A12	.25-20 X .75, TAPTITE II, HEX WSHR SLTD	2.000 EA
WD1000B16	LUGSDIRECT WIRE LUG, CAT # S4	2.000 EA
10XN2520S06	1/4 20X3/8 HX HD CAP S.S.	2.000 EA
11XW1032G06	10-32 X .38, TAPTITE II, HEX WSHR SLTD U	1.000 EA
HW3001B01	003SS CUP WASHER, FOR #8 SCREW	1.000 EA
36EP1101C54G	FREP 6206,GRSR,RLF,.25-20 FH HOLES @.50	1.000 EA
HW4500A19	1/4-28X1/4 SLOTTED PLUG F/S	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4001A01SP	DRAIN PLUG, PLASTIC (MICRO PLAS)	1.000 EA
HW5100A06	W2420-025 WVY WSHR (WB)	1.000 EA
36EP1300A48G	SPL PU 206 BRG. 182-4TC W/GREASER & RELI	1.000 EA
HW4500A19	1/4-28X1/4 SLOTTED PLUG F/S	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4001A01SP	DRAIN PLUG, PLASTIC (MICRO PLAS)	1.000 EA
10XN2520A24	1/4-20X 1 1/2 HEX HD X	4.000 EA
HA3101A34	THRUBOLT- 1/4-20 X 10.375	4.000 EA
51XB1214A16	12-14X1.00 HXWSSLD SERTYB	1.000 EA
36FH1001A02G	FAN HOUSING MACH, W/GRAY EPOXY	1.000 EA

Parts List (continued)

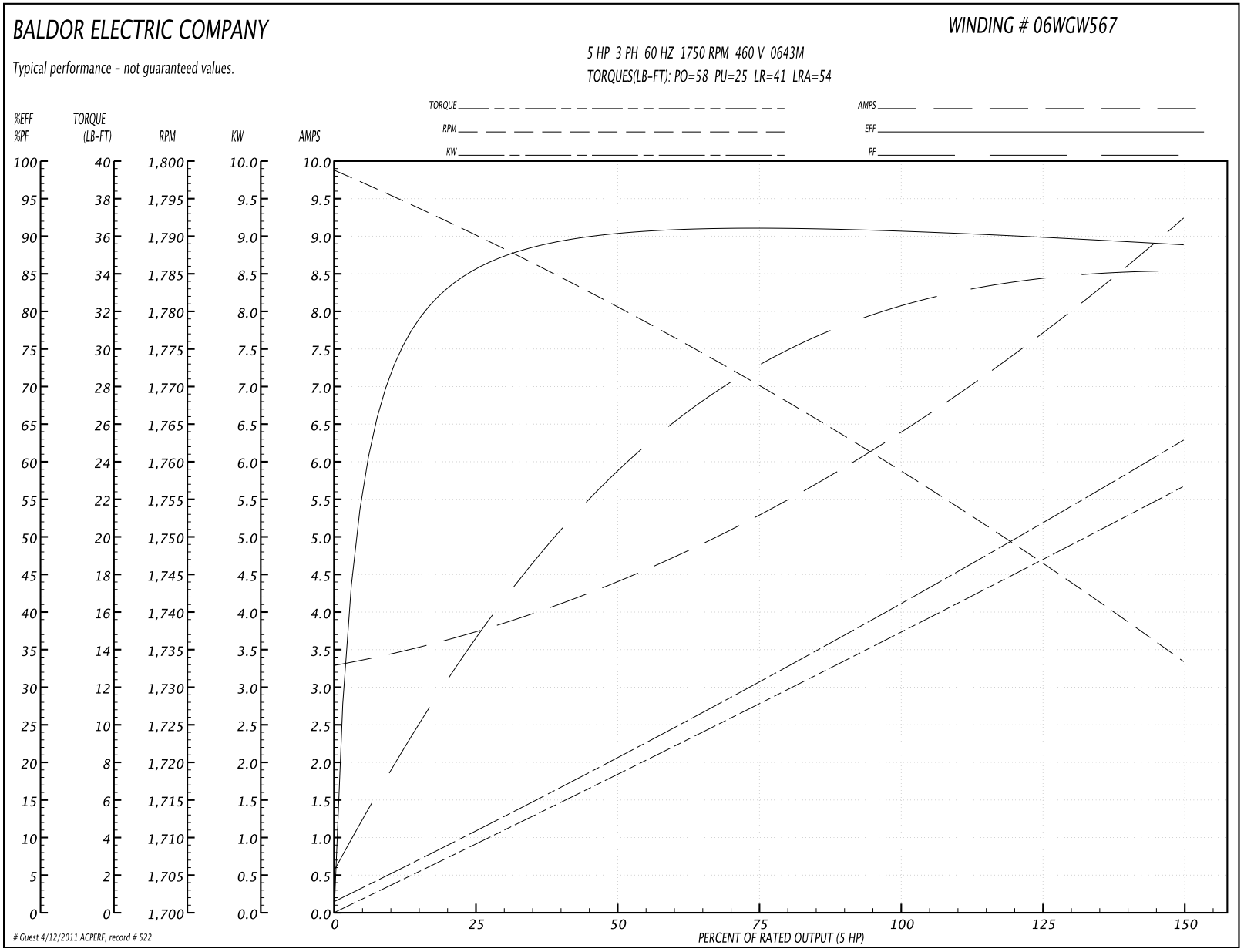
Part Number	Description	Quantity
10XN2520A16	1/4-20 X 1 HEX HEAD CAP SCR, ZINC PLATED	3.000 EA
WD4100A02	DP-1000 HEYCO PLUG OR 62MP1000 MICRO PL	1.000 EA
36FH4500A10	DRIP/FAN COVER, W/AUTOPHERETIC PRIMER	1.000 EA
12XF0832A06	8-32 X 3/8 TYP HX SL	4.000 EA
06CB1502A01G	LIPPED CONDUIT BOX LID, MACH GRAY EPOXY	1.000 EA
06GS1003	GASKET, KOBX LID, 1/8" THICK BLACK NEOPR	1.000 EA
10XN2520A12	O1/4-20X 3/4 HEX HEAD CAP	2.000 EA
HW1001A25	LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I	2.000 EA
HA1005A22	SLINGER, OD 2.00, ID 1.14, 206 BRG, GM	1.000 EA
HW4600B36SP	V-RING SLINGER 1.188 X 1.690 X 0.240	1.000 EA
HW2501E16	KEY, 1/4 SQ X 1.750	1.000 EA
HA7000A02	KEY RETAINER RING, 1 1/8 DIA, 1 3/8 DIA	1.000 EA
MJ5001A01	46-665 RED SEALER	0.001 QT
85XU0407S04	4X1/4 U DRIVE PIN STAINLESS	2.000 EA
LB1115	LABEL,LIFTING DEVICE	1.000 EA
LB1002	LABEL,MARINE DUTY (ON ROLLS)	1.000 EA
MJ1000A75	GREASE, POLYREX EM EXXON	0.050 LB
35FN3002A04SP	EXFN, PLASTIC, 6.376 OD, .906 ID W/KEY	1.000 EA
MG1025N19	PAINT, 778.50 WILKO, RELIANCE ELEC GREEN	0.028 GA
LB1125C02	SUPER-E (STOCK CTN LABEL SUPER-E WITH FL	1.000 EA
LC0005E01	CONN.DIA./WARNING LABEL (LC0005/LB1119)	1.000 EA
NP1260E	CP, SUPER-E, SS, UL CSA CC, W/O THERMAL,	1.000 EA
36PA1001	PACKAGING GROUP	1.000 EA
PK3082	STYROFOAM CRADLE	1.000 EA

Parts List (continued)

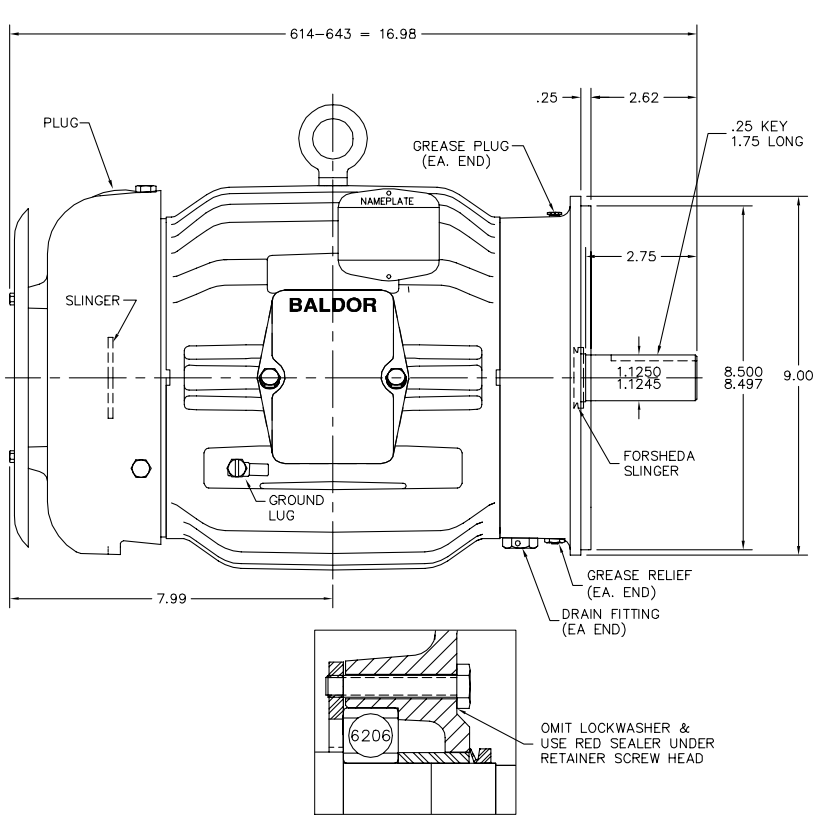
Part Number	Description	Quantity
LB1357	ENERGY GUIDE LABEL (BOX LABEL)	1.000 SH

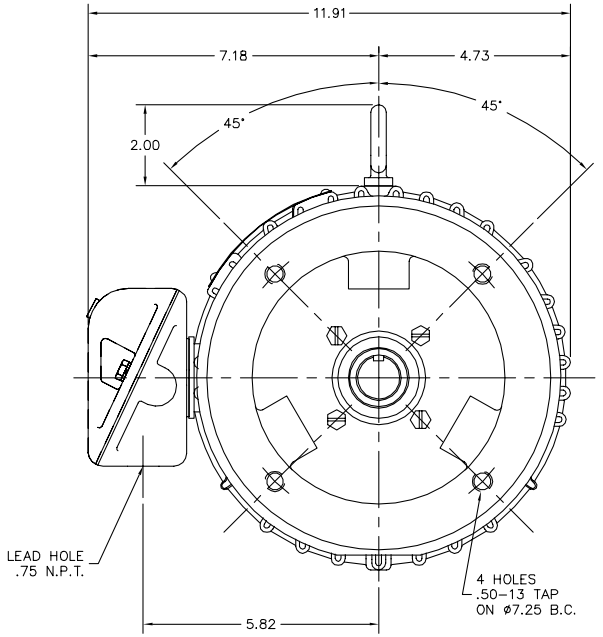
Performance Data at 460V, 60Hz, 5.0HP (Typical performance - Not guaranteed values)							
General Characteristics							
Full Load Torque:	14.9 LB-FT			**Start Configuration:**		DOL	
No-Load Current:	3.36 Amps			**Break-Down Torque:**		58.0 LB-FT	
Line-line Res. @ 25°C.:	2.28 Ohms A Ph / 0.0 Ohms B Ph			**Pull-Up Torque:**		25.0 LB-FT	
Temp. Rise @ Rated Load:	45 C			**Locked-Rotor Torque:**		41.0 LB-FT	
Temp. Rise @ S.F. Load:	55 C			**Starting Current:**		54.0 Amps	
Load Characteristics							
% of Rated Load	**25**	**50**	**75**	**100**	**125**	**150**	**S.F.**
Power Factor:	38.0	60.0	73.0	80.0	84.0	86.0	82.0
Efficiency:	85.8	90.3	91.2	90.8	90.0	88.7	90.3
Speed:	1790.0	1780.0	1770.0	1759.0	1747.0	1733.0	1752.0
Line Amperes:	3.66	4.35	5.34	6.45	7.74	9.2	7.22

Performance Graph at 460V, 60Hz, 5.0HP Typical performance - Not guaranteed values



06LYH480





CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT MOTOR PERFORMANCE IS SUITABLE IN THE APPLICATION.

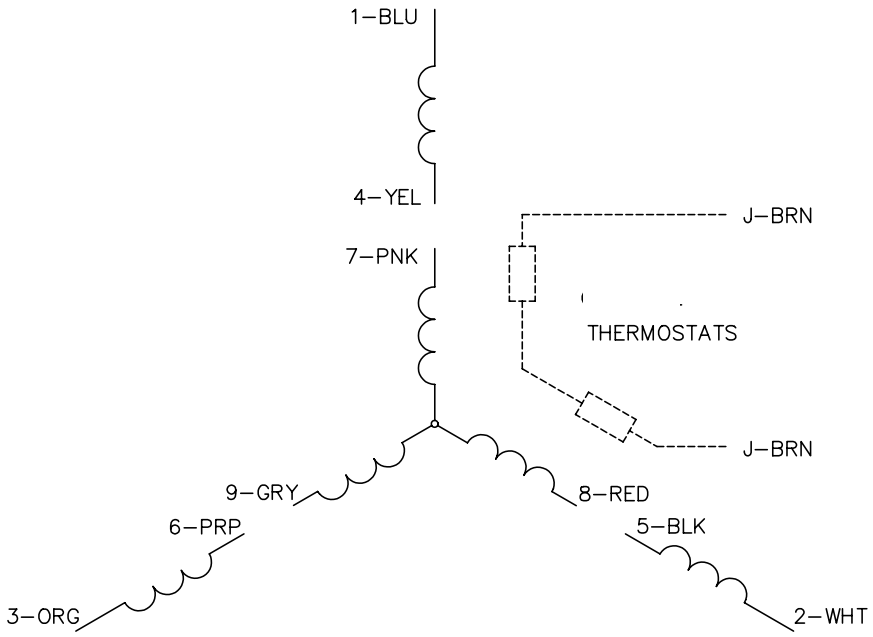
REV. DESC: CORRECT RIGHT VIEW REGARDING PUEP		
REV. LTR: B	VERSION: 02	TDR: 000000419768
FILE: \AAA\00138\658	REVISED: 09:38:49 01/17/2007	BY: ENJASFO
MTL: –		

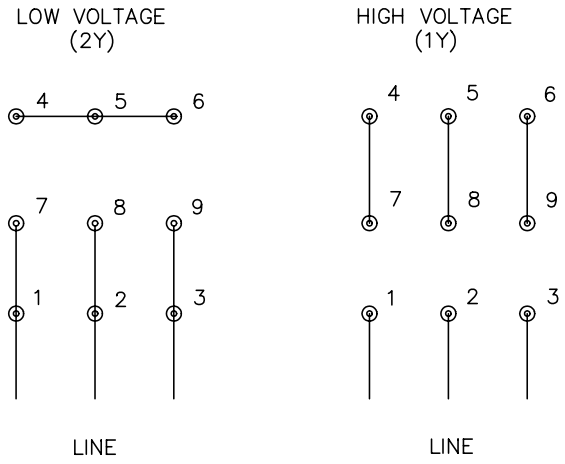
BALDOR ELECTRIC Co.

VERT 182–4TC TEFC M CP W/6206 BRG EA.END,LIPPED LID,DRP CVR

06LYH480

CD0005





NOTES:

1. INTERCHANGE ANY TWO LINE LEADS TO REVERSE ROTATION.
2. OPTIONAL THERMOSTATS ARE PROVIDED WHEN SPECIFIED.
3. ACTUAL NUMBER OF INTERNAL PARALLEL CIRCUITS MAY BE A MULTIPLE OF THOSE SHOWN ABOVE.
4. LEAD COLORS ARE OPTIONAL. LEADS MUST ALWAYS BE NUMBERED AS SHOWN.

CD0005

REV. DESC: REVISE TO SHOW OPTIONAL COLORS			BALDOR ELECTRIC Co.
REV. LTR: E	BY: JLP	REVISED: 01/19/99 10:15	TDR: 0171435
CD0005		FILE: AAA00005140	MDL: –
		MTL: –	3PH, DV, 9 LEADS

WESTECH AN EMPLOYEE OWNED COMPANY

SOLENOID VALVE

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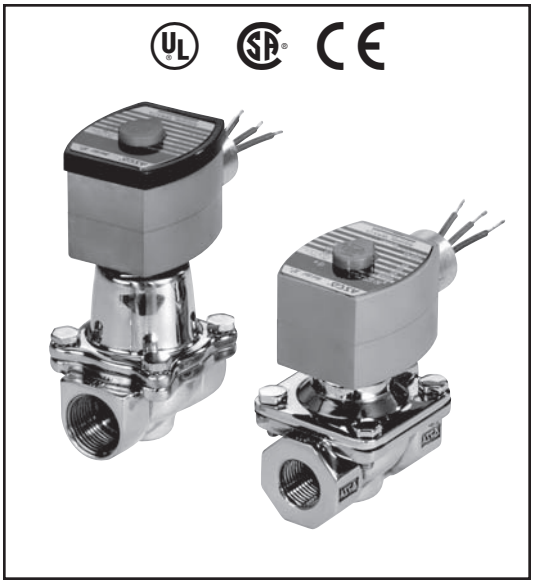
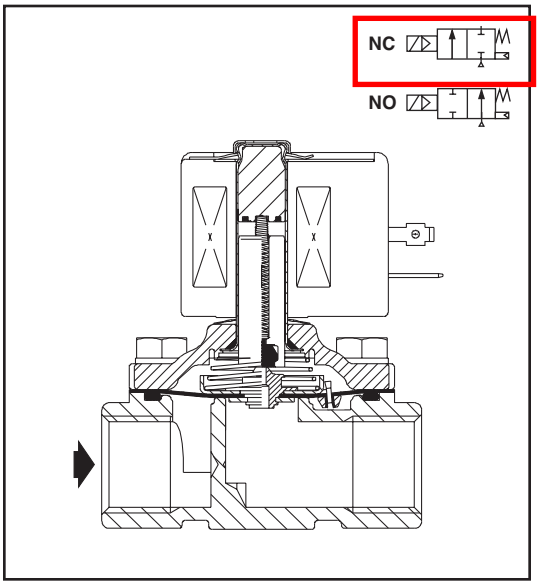
Features

- Wide range of pressure ratings, sizes, and resilient materials provide long service life and low internal leakage
- High Flow Valves for liquid, corrosive, and air/inert gas service
- Industrial applications include:
  - Car wash
  - Air compressors
  - Pumps
  - Laundry equipment
  - Industrial water control





Construction

Valve Parts in Contact with Fluids		
Body	Brass	304 Stainless Steel
Seals and Discs	NBR or PTFE	
Disc-Holder	PA	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver

Electrical

Standard Coil and Class of Insulation	Watt Rating and Power Consumption				Spare Coil Part Number			
		AC			General Purpose		Explosionproof	
	DC Watts	Watts	VA Holding	VA Inrush	AC	DC	AC	DC
F	-	6.1	16	40	238210	-	238214	-
F	11.6	10.1	25	70			238614	
F	16.8	16.1	35	180	272610	97617	272614	97617
F	-	17.1	40	93	238610	-	238614	-
F	-	20	43	240	99257	-	99257	-
F	-	20.1	48	240	272610	-	272614	-
H	30.6	-	-	-	-	74073	-	74073
H	40.6	-	-	-	-	238910	-	238914

Standard Voltages: 24, 120, 240, 480 volts AC, 60 Hz or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.
Other voltages available when required.

Solenoid Enclosures

Standard: RedHat II - Watertight, Types 1, 2, 3, 3S, 4, and 4X; RedHat - Type I.

Optional: RedHat II - Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9; Red-Hat - Explosionproof and Watertight, Types 3, 4, 4X, 7, and 9.

(To order, add prefix "EF" to catalog number, except Catalog Numbers 8210B057, 8210B058, and 8210B059, which are not available with Explosionproof enclosures.)
See Optional Features Section for other available options.

Nominal Ambient Temp. Ranges

RedHat II/
RedHat AC: 32°F to 125°F (0°C to 52°C)

RedHat II DC: 32°F to 104°F (0°C to 40°C)
RedHat DC: 32°F to 77°F (0°C to 25°C)
(104°F/40°C occasionally)

Refer to Engineering Section for details.

Approvals

UL listed as indicated. CSA certified.
RedHat II meets applicable CE directives.
Refer to Engineering Section for details.

ASCO®

Specifications (English units)

Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor	Operating Pressure Differential (psi)							Max. Fluid Temp. °F		Brass Body			Stainless Steel Body			Watt Rating/ Class of Coil Insulation ⑦	
			Min.	Max. AC			Max. DC												
				Air-Inert Gas	Water	Light Oil @ 300 SSU	Air-Inert Gas	Water	Light Oil @ 300 SSU	AC	DC	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	Catalog Number	Constr. Ref. No. ④	UL ⑤ Listing	AC	DC
NORMALLY CLOSED (Closed when de-energized), NBR or PTFE ② Seating																			
3/8	3/8	1.5	①	150	125	-	40	40	-	180	150	8210G73 ③	1P	●	8210G36 ③	1P	●	6.1/F	11.6/F
3/8	5/8	3	0	150	150		40	40	-	180	150	8210G03	3D	❍	-	-	-	10.1/F	11.6/F
3/8	5/8	3	5	200	150	135	125	100	100	180	150	8210G1	6D	❍	-	-	-	6.1/F	11.6/F
3/8	5/8	3	5	300	300	300	-	-	-	175	-	8210G6	5D	❍	-	-	-	17.1/F	-
1/2	7/16	2.2	①	150	125	-	40	40	-	180	150	8210G15 ②	2P	●	8210G37 ③	2P	●	6.1/F	11.6/F
1/2	5/8	4	0	150	150	-	40	40	-	180	150	EF 8210G94	5D	❍	-	-	-	10.1/F	11.6/F
1/2	5/8	4	0	150	150	125	40	40	-	175	150	-	-	-	8210G87	7D	●	17.1/F	11.6/F
1/2	5/8	4	5	200	150	135	125	100	100	180	150	8210G2	6D	❍	-	-	-	6.1/F	11.6/F
1/2	5/8	4	5	300	300	300	-	-	-	175	-	8210G7	5D	❍	-	-	-	17.1/F	-
1/2	5/8	4	5	300	300	-	300	300	-	180	125	8210G227	5D	❍	-	-	-	17.1/F	40.6/H
3/4	5/8	4.5	0	150	150	125	40	40	-	175	150	-	-	-	8210G88	7D	●	17.1/F	11.6/F
3/4	3/4	5	5	125	125	125	100	90	75	180	150	8210G9	9D	❍	-	-	-	6.1/F	11.6/F
3/4	3/4	5	0	150	150	-	40	40	-	180	150	8210G95	8D	❍	-	-	-	10.1/F	11.6/F
3/4	3/4	6.5	5	250	150	100	125	125	125	180	150	8210G3	11D	❍	-	-	-	6.1/F	11.6/F
3/4	3/4	6	0	-	-	-	200	180	180	-	77	8210B26 ② ‡	10P	-	-	-	-	-	30.6/H
3/4	3/4	6	0	350	300	200	-	-	-	200	-	8210G26 ② ‡	40P	●	-	-	-	16.1F	-
1	1	13	0	-	-	-	100	100	80	-	77	8210B54 ‡	31D	-	8210D69	15D	-	-	30.6/H
1	1	13	0	150	125	125	-	-	-	180	-	8210G54	41D	●	8210G89	45D	●	16.1/F	-
1	1	13	5	150	150	100	125	125	125	180	150	8210G4	12D	❍	-	-	-	6.1/F	11.6/F
1	1	13.5	0	300	225	115	-	-	-	200	-	8210G27 ‡	42P	●	-	-	-	20.1/F	-
1	1	13.5	10	300	300	300	-	-	-	175	-	8210G78 ②	13P	-	-	-	-	17.1/F	-
1 1/4	1 1/8	15	0	-	-	-	100	100	80	-	77	8210B55 ‡	32D	-	-	-	-	-	30.6/H
1 1/4	1 1/8	15	0	150	125	125	-	-	-	180	-	8210G55	43D	●	-	-	-	16.1/F	-
1 1/4	1 1/8	15	5	150	150	100	125	125	125	180	150	8210G8	16D	❍	-	-	-	6.1/F	11.6/F
1 1/2	1 1/4	22.5	0	-	-	-	100	100	80	-	77	8210B56 ‡	33D	-	-	-	-	-	30.6/H
1 1/2	1 1/4	22.5	0	150	125	125	-	-	-	180	-	8210G56 ‡	44D	●	-	-	-	16.1/F	-
1 1/2	1 1/4	22.5	5	150	150	100	125	125	125	180	150	8210G22	18D	●	-	-	-	6.1/F	11.6/F
2	1 3/4	43	5	150	125	90	50	50	50	180	150	8210G100	20P	●	-	-	-	6.1/F	11.6/F
2 1/2	1 3/4	45	5	150	125	90	50	50	50	180	150	8210G101	21P	●	-	-	-	6.1/F	11.6/F
NORMALLY OPEN (Open when de-energized), NBR Seating (PA Disc-Holder, except as noted)																			
3/8	5/8	3	0	150	150	125	125	125	80	180	150	8210G33	23D	●	-	-	-	10.1/F	11.6/F
3/8	5/8	3	5	250	200	200	250	200	200	180	180	8210G11 ⑧ ⑨	39D	●	-	-	-	10.1/F	11.6/F
1/2	5/8	4	0	150	150	125	125	125	80	180	150	8210G34	23D	●	-	-	-	10.1/F	11.6/F
1/2	5/8	3	0	150	150	100	125	125	80	180	150		-	-	8210G30	37D	●	10.1/F	11.6/F
1/2	5/8	4	5	250	200	200	250	200	200	180	180	8210G12 ⑧ ⑨	39D	●	-	-	-	10.1/F	11.6/F
3/4	3/4	5.5	0	150	150	125	125	125	80	180	150	8210G35	25D	●	-	-	-	10.1/F	11.6/F
3/4	5/8	3	0	150	150	100	125	125	80	180	150	-	-	-	8210G38	38D	●	10.1/F	11.6/F
3/4	3/4	6.5	5	-	-	-	250	200	200	-	180	8210C13	24D	●	-	-	-	-	16.8/F
3/4	3/4	6.5	5	250	200	200	-	-	-	180	-	8210G13	46D	●	-	-	-	16.1/F	-
1	1	13	0	125	125	125	-	-	-	180	-	8210B57 ⑥ ⑩	34D	●	-	-	-	20/F	-
1	1	13	5	-	-	-	125	125	125	-	180	8210D14	26D	●	-	-	-	-	16.8/F
1	1	13	5	150	150	125	-	-	-	180	-	8210G14	47D	●	-	-	-	16.1/F	-
1 1/4	1 1/8	15	0	125	125	125	-	-	-	180	-	8210B58 ⑥ ⑩	35D	●	-	-	-	20/F	-
1 1/4	1 1/8	15	5	-	-	-	125	125	125	-	180	8210D18	28D	●	-	-	-	-	16.8/F
1 1/4	1 1/8	15	5	150	150	125	-	-	-	180	-	8210G18	48D	●	-	-	-	16.1/F	-
1 1/2	1 1/4	22.5	0	125	125	125	-	-	-	180	-	8210B59 ⑥ ⑩	36D	●	-	-	-	20/F	-
1 1/2	1 1/4	22.5	5	-	-	-	125	125	125	-	180	8210D32	29D	●	-	-	-	-	16.8/F
1 1/2	1 1/4	22.5	5	150	150	125	-	-	-	180	-	8210G32	49D	●	-	-	-	16.1/F	-
2	1 3/4	43	5	-	-	-	125	125	125	-	150	8210103	30P	●	-	-	-	-	16.8/F
2	1 3/4	43	5	125	125	125	-	-	-	180	-	8210G103	50P	●	-	-	-	16.1/F	-
2 1/2	1 3/4	45	5	-	-	-	125	125	125	-	150	8210104	27P	●	-	-	-	-	16.8/F
2 1/2	1 3/4	45	5	125	125	125	-	-	-	180	-	8210G104	51P	●	-	-	-	16.1/F	-

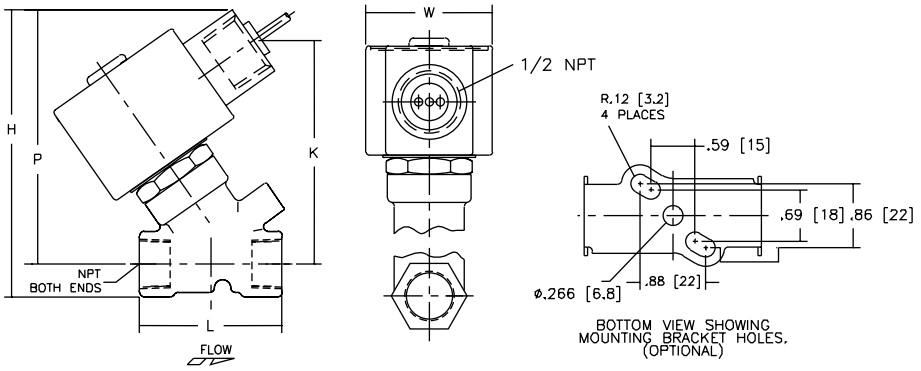
Notes: ① 5 psi on Air; 1 psi on Water.
② Valve provided with PTFE main disc.
③ Valve includes Ultem (G.E. trademark) piston.
④ Letter "D" denotes diaphragm construction; "P" denotes piston construction.
⑤ ❍ Safety Shutoff Valve; ● General Purpose Valve.
Refer to Engineering Section (Approvals) for details.
⑥ Valves not available with Explosionproof enclosures.
⑦ On 50 hertz service, the watt rating for the 6.1/F solenoid is 8.1 watts.
⑧ AC construction also has PA seating.
⑨ No disc-holder.
⑩ Stainless Steel disc-holder.
‡ Must have solenoid mounted vertical and upright.

Dimensions: inches (mm)

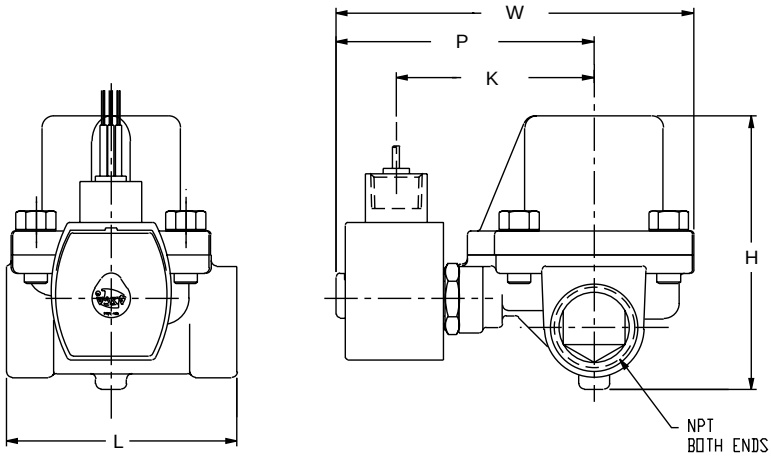
Constr. Ref. No.		H	K	L	P	W
1*	ins.	3.85	3.00	1.91	3.41	1.69
	mm	98	76	49	87	43
2*	ins.	4.17	3.25	2.28	3.63	1.69
	mm	106	83	58	92	43
13	ins.	4.44	3.22	3.75	4.19	5.81
	mm	113	82	95	106	147
5	ins.	3.84	2.31	2.75	3.28	2.28
	mm	98	59	70	83	58
[illegible]	ins.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	mm	86	49	70	71	58
7	ins.	4.19	2.50	2.81	3.47	2.39
	mm	106	64	71	88	61
8	ins.	4.13	2.47	2.81	3.44	2.29
	mm	105	63	71	87	58
9*	ins.	3.66	2.10	2.81	2.96	2.28
	mm	93	53	71	75	58
10*①	ins.	5.25	X	2.81	4.59	2.31
	mm	133	X	71	117	59
11*	ins.	4.16	2.66	3.84	3.52	2.75
	mm	106	68	98	89	70
12	ins.	5.64	3.15	3.75	4.01	3.36
	mm	143	80	95	102	85
15*	ins.	5.34	X	3.75	4.47	3.84
	mm	136	X	95	114	98
16	ins.	5.64	3.15	3.66	4.01	3.56
	mm	143	80	93	102	90
18	ins.	6.11	3.30	4.38	4.16	3.92
	mm	155	84	111	106	100
20*	ins.	7.33	3.71	5.06	4.57	4.87
	mm	186	94	129	116	124
21*	ins.	7.33	3.71	5.50	4.57	4.87
	mm	186	94	140	116	124
23	ins.	4.35	2.65	2.75	3.79	2.28
	mm	110	67	70	96	58
24	ins.	5.06	X	3.78	4.44	2.75
	mm	129	X	96	113	70
25	ins.	4.64	2.81	2.81	3.94	2.28
	mm	118	71	71	100	58
26	ins.	6.53	X	3.75	4.91	3.19
	mm	166	X	95	125	81
27	ins.	8.22	X	5.50	5.47	4.87
[illegible]	mm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	ins.	6.53	X	3.66	4.91	3.19
	mm	166	X	93	125	81
29	ins.	7.03	X	4.38	5.06	4.40
	mm	179	X	111	129	112

① Valves must be mounted with solenoid vertical and upright.
* DC dimensions slightly larger.

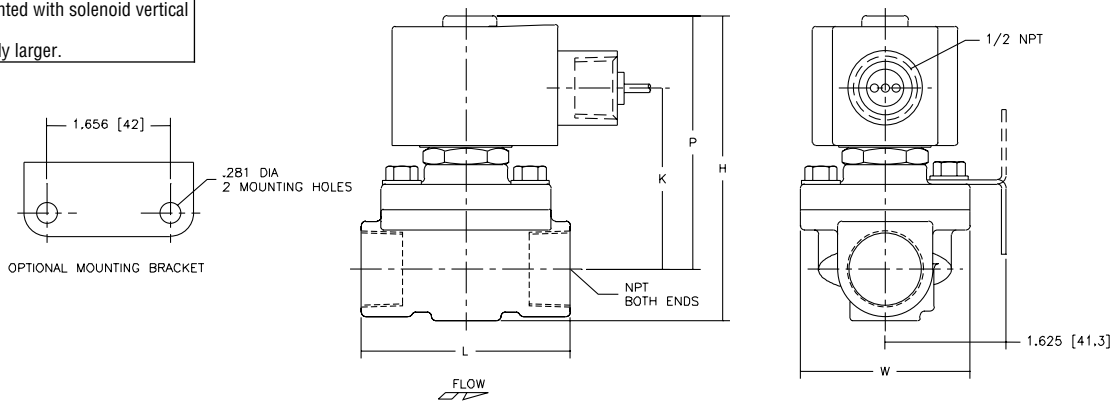
Constr. Refs. 1, 2



Constr. Ref. 13



Constr. Refs. 5-9, 11, 20, 21, 23 , 25, 37,38



Installation & Maintenance Instructions

2-WAY INTERNAL PILOT-OPERATED SOLENOID VALVES
HUNG DIAPHRAGM — 3/8, 1/2 AND 3/4 NPT
NORMALLY CLOSED OPERATION

BULLETINS
8210
8211

Form No.V5825R1

DESCRIPTION

Bulletin 8210's are 2-way, normally closed, internal pilot operated solenoid valves. Valve body and bonnet are of brass construction. Standard valves have a General Purpose, NEMA Type 1 Solenoid Enclosure.

Bulletin 8211's are the same as Bulletin 8210's except the solenoids are equipped with an enclosure which is designed to meet NEMA Type 4 Watertight, NEMA Type 7 (C or D) Hazardous Locations - Class I, Group C or D, and NEMA Type 9 (E, F or G) Hazardous Locations - Class II, Group E, F or G. The explosion-proof/watertight solenoid enclosure is shown on a separate sheet of Installation and Maintenance Instructions, Form No. V-5380.

Bulletin 8210 and 8211 valves with suffix 'HW' in the catalog number are specifically designed for hot water service.

OPERATION

Normally Closed: Valve is closed when solenoid is de-energized and opens when solenoid is energized.

MANUAL OPERATOR (Optional)

Valves with suffix 'MO' in catalog number are provided with a manual operator which allows manual operation when desired or during an interruption of electrical power. To operate valve manually, push in knurled cap and rotate clockwise 180°. Disengage manual operator by rotating knurled cap counterclockwise 180° before operating electrically.

MANUAL OPERATOR LOCATION (Refer to Figure 3)

Manual operator (when shipped from factory) will be located over the valve outlet. Manual operator may be relocated at 90° increments by rotating valve bonnet. Remove bonnet screws (4) and rotate valve bonnet with solenoid to desired position. Replace bonnet screws (4) and torque in a crisscross manner to 110 ± 10 inch pounds.

If valve is installed in system and is operational, proceed in the following manner:

WARNING: Depressurize valve and turn off electrical power supply.

1. Remove retaining cap or clip and slip the entire solenoid enclosure off the solenoid base sub-assembly. CAUTION: When metal retaining clip disengages, it will spring upwards.
2. Remove bonnet screws (4) and rotate valve bonnet to desired position.
3. Replace bonnet screws (4) and torque in a crisscross manner to 110 ± 10 inch pounds.
4. Replace solenoid enclosure and retaining clip or cap.

INSTALLATION

Check nameplate for correct catalog number, pressure, voltage and service.

TEMPERATURE LIMITATIONS

For maximum valve ambient and fluid temperatures refer to chart. The temperature limitations listed are for UL applications. For non UL applications, higher ambient and fluid temperature limitations are available. Consult factory. Check catalog number on nameplate to determine maximum temperatures.

Construction	Coil Class	Catalog Number Prefix	Maximum Ambient Temp. °F.	Maximum Fluid Temp. °F.
A-C Construction (Alternating Current)	A	None or DA	77	180
	F	DF or FT	122	180
	H	HT	140	180
D-C Construction (Direct Current)	A, F or H	None, FT or HT	77	150
Catalog Numbers Suffixed 'HW' A-C Construction (Alternating Current)	A	None or DA	77	210
	F	DF or FT	77	210
	H	HT	122	210

POSITIONING/MOUNTING

Valve may be mounted in any position. For mounting bracket (optional feature) dimensions, refer to Figure 1.

PIPING

Connect piping to valve according to markings on valve body. Apply pipe compound sparingly to male pipe threads only; if applied to valve threads, it may enter the valve and cause operational difficulty. Pipe strain should be avoided by proper support and alignment of piping. When tightening the pipe do not use valve as a lever. Wrenches applied to valve body or piping are to be located as close as possible to connection point. **IMPORTANT: Valves with suffix 'HW' in the catalog number have a special diaphragm material which is specifically compounded for hot water service. This material can be attacked by oil and grease. Wipe the pipe threads clean of cutting oils and use teflon tape to seal pipe joints.**

IMPORTANT: For the protection of the solenoid valve, install a strainer or filter suitable for the service involved in the inlet side as close to the valve as possible. Periodic cleaning is required depending on the service conditions. See Bulletins 8600, 8601 and 8602 for strainers.

WIRING

Wiring must comply with Local and National Electrical Codes. Housings for all solenoids are provided with connections for 1/2 inch conduit. The general purpose solenoid enclosure may be rotated to facilitate wiring by removing the retaining cap or clip. CAUTION: When metal retaining clip disengages it will spring upwards. Rotate to desired position. Replace retaining cap or clip before operating.

NOTE: Alternating Current (A-C) and Direct Current (D-C) Solenoids are built differently. To convert from one to the other, it is necessary to change the complete solenoid including the solenoid base sub-assembly and core assembly.

SOLENOID TEMPERATURE

Standard catalog valves are supplied with coils designed for continuous duty service. When the solenoid is energized for a long period, the solenoid enclosure becomes hot and can be touched with the hand for only an instant. This is a safe operating temperature. Any excessive heating will be indicated by the smoke and odor of burning coil insulation.

MAINTENANCE

WARNING: Turn off electrical power and depressurize valve before making repairs. It is not necessary to remove valve from pipe line for repairs.

CLEANING

A periodic cleaning of all solenoid valves is desirable. The time between cleanings will vary, depending on media and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive leakage or noise will indicate that cleaning is required.

PREVENTIVE MAINTENANCE

1. Keep the medium flowing through the valve as free from dirt and foreign material as possible.
2. While in service, operate valve at least once a month to insure proper opening and closing.
3. Periodic inspection (depending on media and service conditions) of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. Replace any parts that are worn or damaged.

IMPROPER OPERATION

1. **Faulty Control Circuit:** Check electrical system by energizing solenoid. A metallic click signifies the solenoid is operating. Absence of the click indicates loss of power supply. Check for loose or blown-out fuses, open circuited or grounded coil, broken lead wires or splice connections.
2. **Burned-Out Coil:** Check for open circuited coil. Replace coil if necessary.
3. **Low Voltage:** Check voltage across coil leads. Voltage must be at least 85% of nameplate rating.
4. **Incorrect Pressure:** Check valve pressure. Pressure to the valve must be within range specified on nameplate.
5. **Excessive Leakage:** Disassemble valve and clean all parts. Replace worn or damaged parts with a complete Spare Parts Kit for best results.

COIL REPLACEMENT (Refer to Figure 2)

Turn off electrical power supply and disconnect coil leads. Proceed in the following manner:

1. Remove retaining cap or clip, nameplate and cover. CAUTION: When metal retaining clip disengages, it will spring upwards.
2. Remove spring washer, insulating washer and coil. Insulating washers are omitted when a molded coil is used.
3. Reassemble in reverse order of disassembly paying careful attention to exploded view provided for identification and placement of parts.

CAUTION: Solenoid must be fully reassembled as the housing and internal parts are part of and complete the magnetic circuit. Place insulating washer at each end of coil if required.

VALVE DISASSEMBLY (Refer to Figures 2 and 3)

Depressurize valve and turn off electrical power supply. Proceed in the following manner:

1. Remove retaining cap or clip and slip the entire solenoid enclosure off the solenoid base sub-assembly. CAUTION: When metal retaining clip disengages, it will spring upwards.
2. Unscrew solenoid base sub-assembly and remove bonnet gasket.
3. Remove valve bonnet screws (4) and valve bonnet.
4. For normal maintenance, it is not necessary to disassemble the manual operator (optional feature) unless external leakage is evident. To disassemble remove stem pin, manual operator stem, stem spring and stem gasket.
5. Remove core spring, core/diaphragm sub-assembly and body gasket. CAUTION: Do not damage or distort hanger spring between core/diaphragm sub-assembly.
6. All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with a complete Spare Parts Kit for best results.

VALVE REASSEMBLY

1. Reassemble in reverse order of disassembly paying careful attention to exploded views provided for identification and placement of parts.
2. Replace body gasket and core/diaphragm sub-assembly. Locate the bleed hole in core/diaphragm sub-assembly approximately 45° from the valve outlet.
3. Replace core spring with wide end in core first; closed end protrudes from top of core.
4. If removed, replace manual operator stem, stem spring, stem gasket and stem pin.
5. Replace valve bonnet and bonnet screws (4). Torque bonnet screws (4) in a crisscross manner to 110 ± 10 inch pounds.
6. Replace bonnet gasket and solenoid base sub-assembly. Put solenoid base sub-assembly to 175 ± 25 inch pounds.
7. Replace solenoid enclosure and retaining cap or clip.
8. After maintenance, operate the valve a few times to be sure of proper opening and closing.

SPARE PARTS KITS

Spare Parts Kits and Coils are available for ASCO valves.
Parts marked with an asterisk (*) are supplied in Spare Parts Kits.

ORDERING INFORMATION FOR SPARE PARTS KITS
When Ordering Spare Parts Kits or Coils Specify Valve Catalog Number, Serial Number and Voltage.

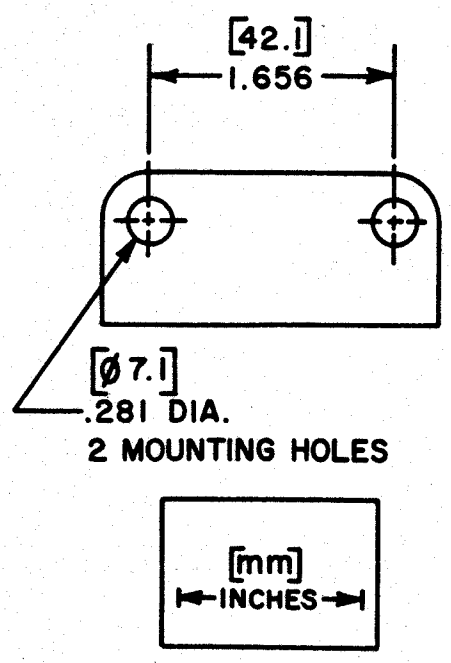
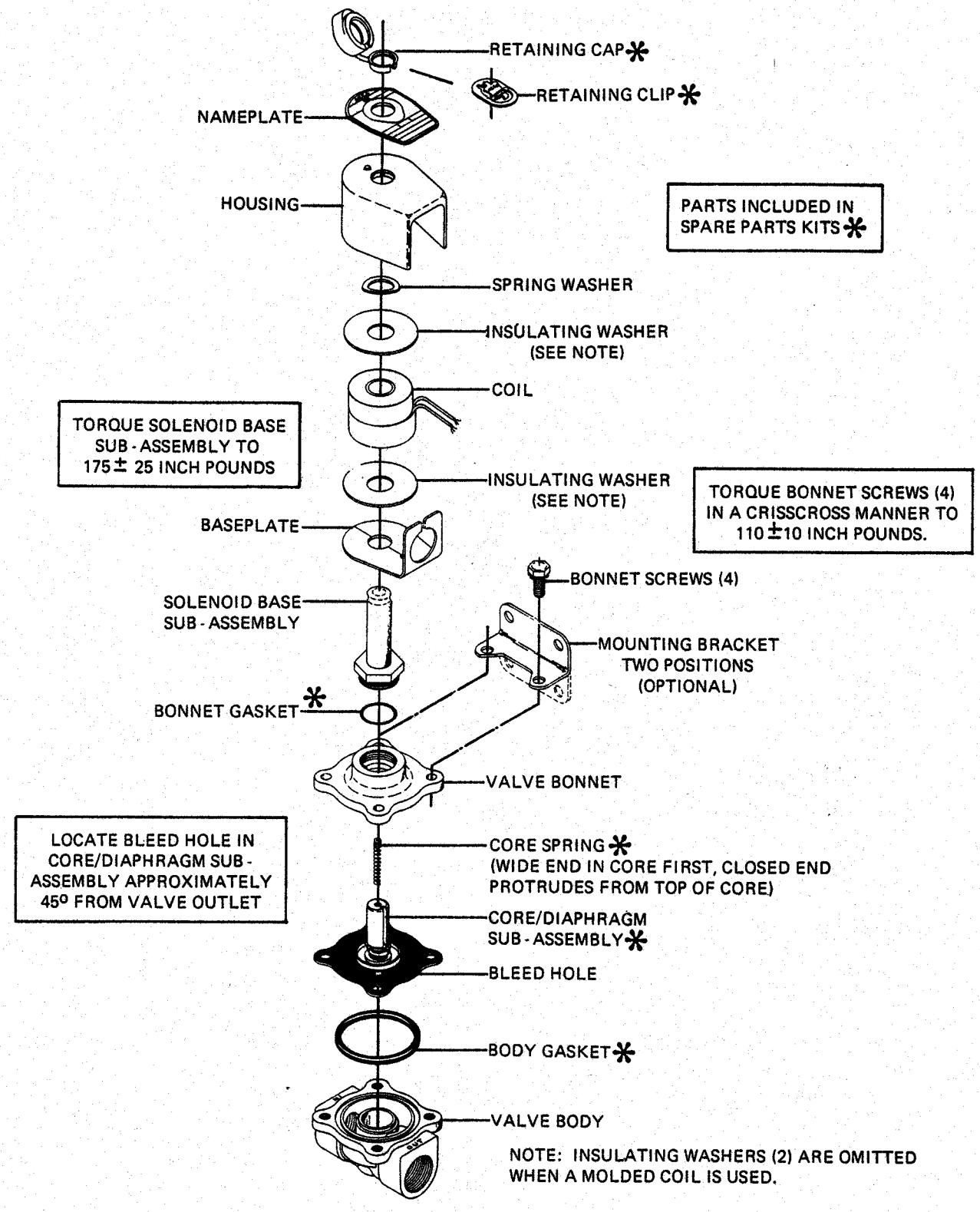


Figure 1. Dimensions For Mounting Bracket (Optional Feature)

ASCO® 50 Hanover Road, Florham Park, New Jersey 07932 www.ascovalve.com



Bulletin 8210 — 3/8, 1/2 & 3/4 N.P.T. — A-C Construction
General purpose solenoid enclosure shown.

Figure 2. **For explosion-proof/watertight solenoid enclosure used on Bulletin 8211, see Form No. V-5380.**

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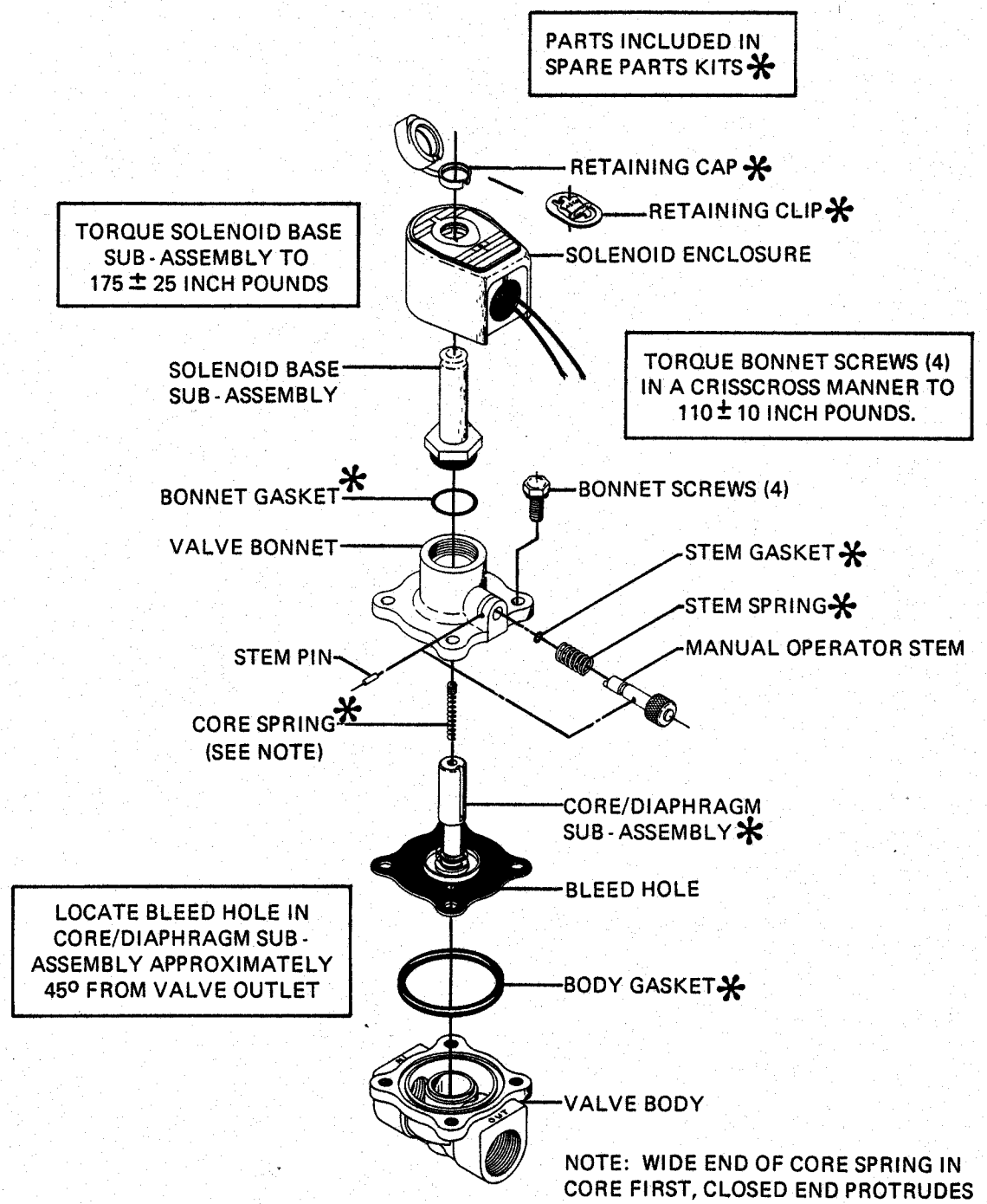

Bulletin 8210 — Manual Operator
General purpose solenoid enclosure shown.
For explosion-proof/watertight solenoid enclosure used on Bulletin 8211, see Form No. V-5380.

Figure 3.

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6 ENCLOSURES

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ASSEMBLY: 21393A-D101 REV:							DWG #: 21393AB-D101		
PART DESCRIPTION: GENERAL ARRANGEMENT							DWG REV:		
WRITTEN BY: MWB				CHKD BY: PCH			APP: JPW		
DATE: 9/8/2011				DATE: 9/8/2011			DATE: 9/8/2011		
ITEM	SP	PART NUMBER	DRAWING NUMBER	DWG REV	MATL CODE	PART DESCRIPTION	QTY	B/M	B/M REV
201	W	21393A-D201	21393AB-D101	0	304SS	MAIN ASSY, SWP20-80, SW-1	1	Y	0
-	-	-	-	-	-	LICENSOR MODEL: SWP20-80	-	-	-
-	-	-	-	-	-	BUILD PER APPOVED DRAWING	-	-	-
-	-	-	-	-	-	UNIT MATERIAL: 304 STAINLESS STEEL	-	-	-
-	-	-	-	-	-	SPIRAL MATERIAL: CARBON STEEL	-	-	-
-	-	-	-	-	-	REDUCER: SWE DRIVE, F240 WITH 184TC FLANGE	-	-	-
202	W	21393A-D202	21393AB-D101	0	304SS	MAIN ASSY, SWP20-80, SW-2	1	Y	0
-	-	-	-	-	-	LICENSOR MODEL: SWP20-80	-	-	-
-	-	-	-	-	-	BUILD PER APPOVED DRAWING	-	-	-
-	-	-	-	-	-	UNIT MATERIAL: 304 STAINLESS STEEL	-	-	-
-	-	-	-	-	-	SPIRAL MATERIAL: CARBON STEEL	-	-	-
-	-	-	-	-	-	REDUCER: SWE DRIVE, F240 WITH 184TC FLANGE	-	-	-
203	W	21393A-D203	21393A-D203		304SS	DISCHARGE PIPING	1	N	
204	W	21393A-D204	21393A-D204		304SS	DISCHARGE PIPING	1	N	
205	W	21393A-D205	21393A-D205		304SS	INLET HOPPER	2	N	
206	W	21393A-D206	21393A-D206		304SS	PIPE SUPPORT	1	N	
207	W	EPO304-050C0750	-	-	304SS	EPOXY ANCHOR, 1/2" X 7 1/2" W/2 NUTS & 2 WASHERS	10	N	-

Revision:

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NOTES:

1. ALL 304 STAINLESS STEEL CONSTRUCTION EXCEPT FOR MOTOR, REDUCER, SPIRAL, DRIVE SHAFT, AND ELECTRICAL ITEMS.

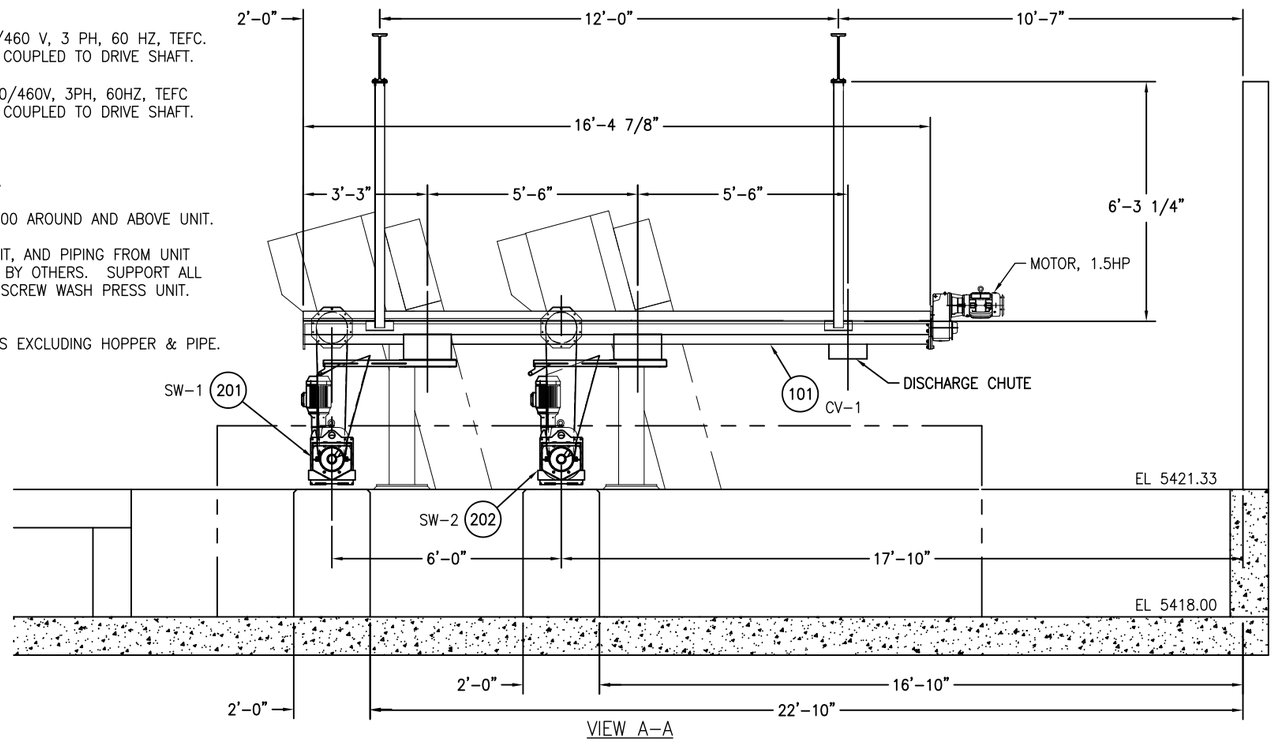
2. DRIVE SYSTEM
   SCREW WASH PRESSES:
   A. MOTOR: 5 HP, 1800 RPM, 230/460 V, 3 PH, 60 HZ, TEFC.
   B. REDUCER: HELICAL WORM GEAR COUPLED TO DRIVE SHAFT.
   CONVEYOR:
   C. MOTOR: 1.5 HP, 1800 RPM, 230/460V, 3PH, 60HZ, TEFC
   D. REDUCER: HELICAL WORM GEAR COUPLED TO DRIVE SHAFT.

3. SPIRAL SPEED:
   SCREW WASH PRESS: 15 RPM (A)
   CONVEYOR: 16 RPM

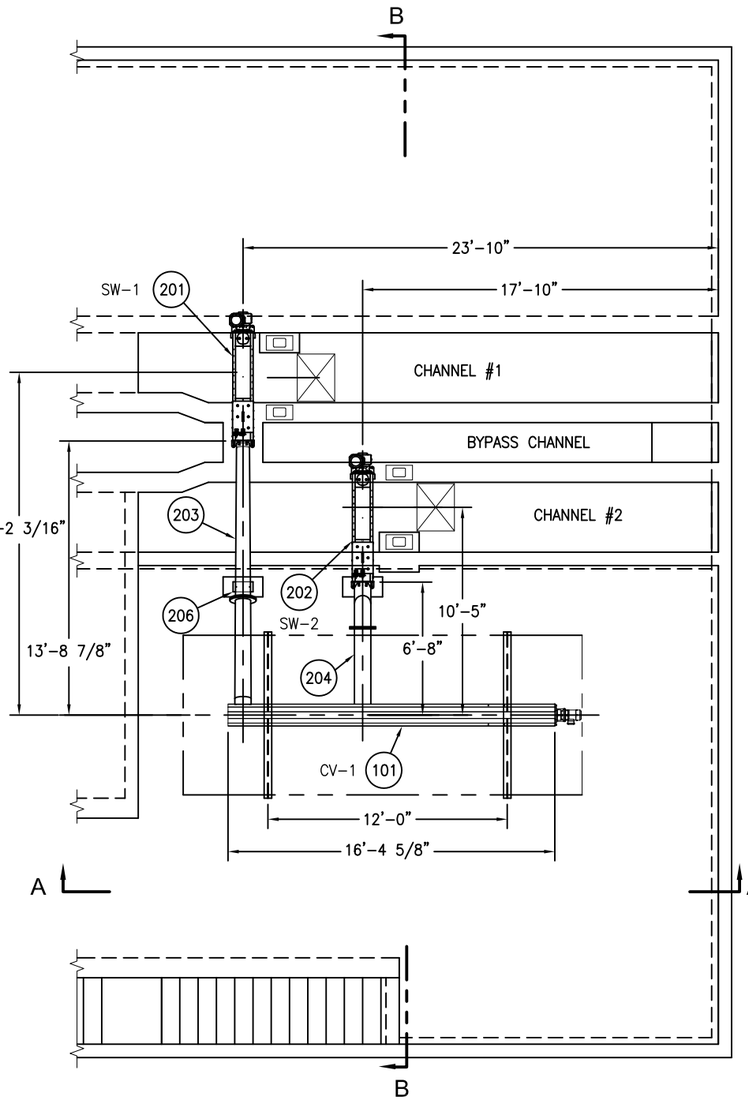
4. RECOMMENDED CLEARANCE TO BE 36.00 AROUND AND ABOVE UNIT.

5. ALL INTERCONNECTING WIRING, CONDUIT, AND PIPING FROM UNIT MOUNTED DEVICES WILL BE SUPPLIED BY OTHERS. SUPPORT ALL EXTERNAL PIPING INDEPENDENTLY OF SCREW WASH PRESS UNIT.

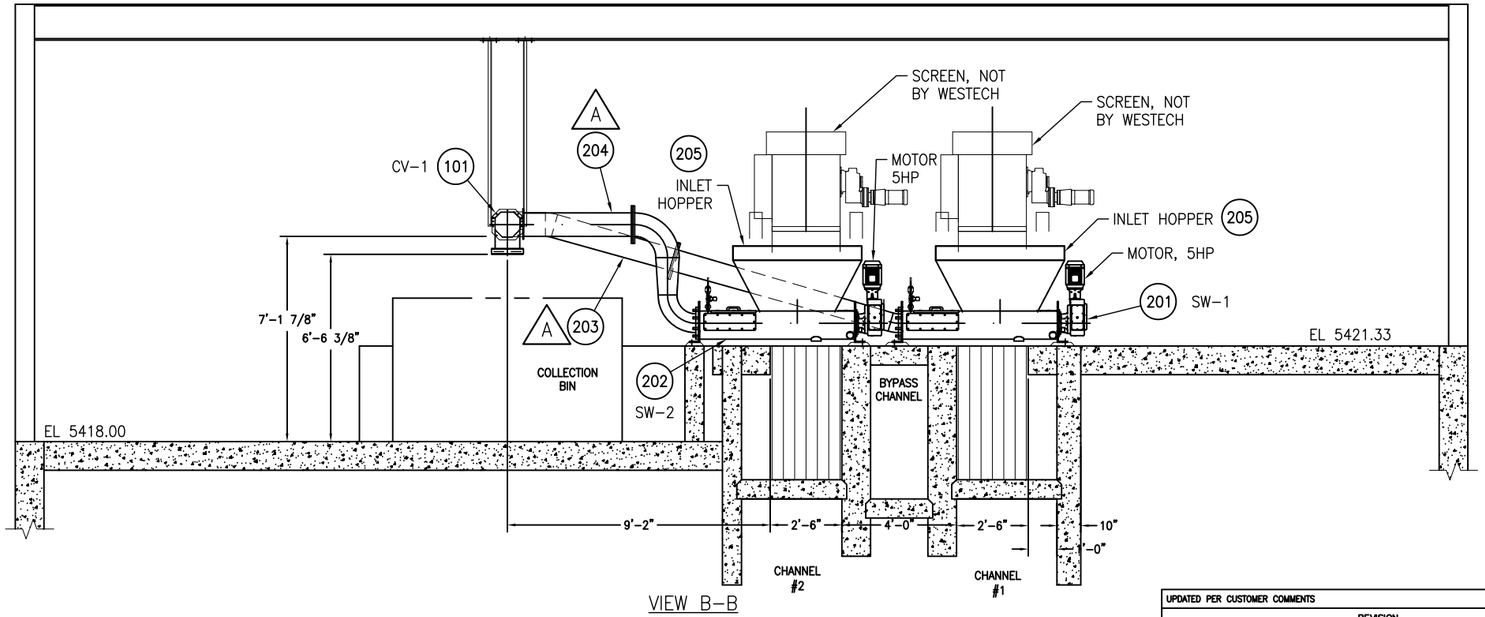
6. WEIGHTS:
   A. SCREW WASH PRESS – 620 LBS EXCLUDING HOPPER & PIPE.
   B. CONVEYOR: 1150 LBS



VIEW A–A



PLAN



VIEW B–B

SHEET 1 OF 4

PREPARED FOR: HAROLD D THOMPSON WRF
FOUNTAIN, CO

ENGINEER: GMS, INC.
COLORADO SPRINGS, CO

CONTRACTOR: WEAVER CONSTRUCTION MANAGEMENT, INC.
ENGLEWOOD, CO

PROJECT ORDER NO.: 9103 / 11360

DESCRIPTION								
GENERAL ARRANGEMENT – (2) SCREW WASH PRESS / (1) CONVEYOR								
TYPE				SIZE				
SWP20–80 / CVH260–5000								
DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	09–11	MWB	PCH	JPW

ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z–024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

REVISION	BY	CHKD	DATE	LTR
UPDATED PER CUSTOMER COMMENTS	MWB	JPW	10–24–11	A

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
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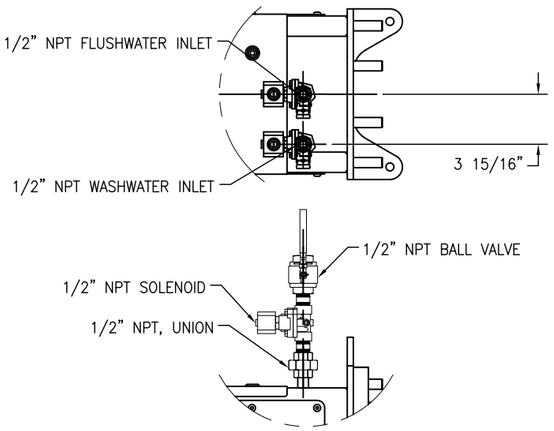
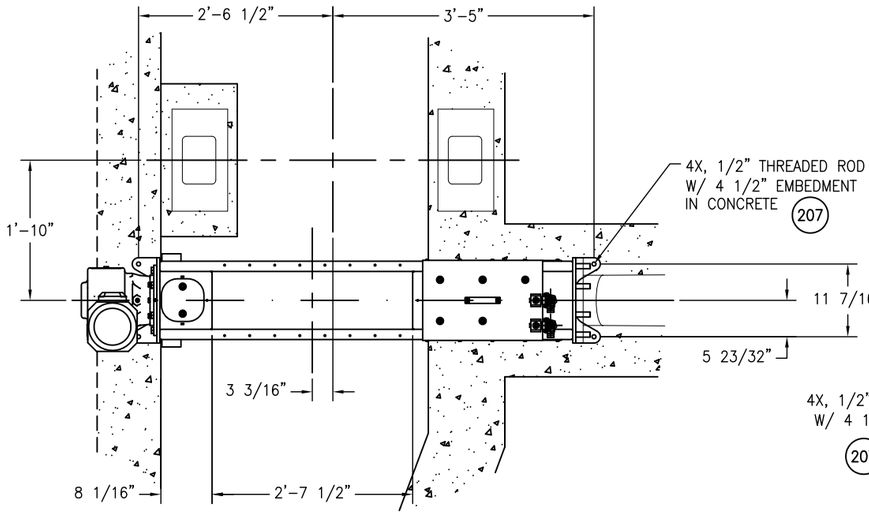
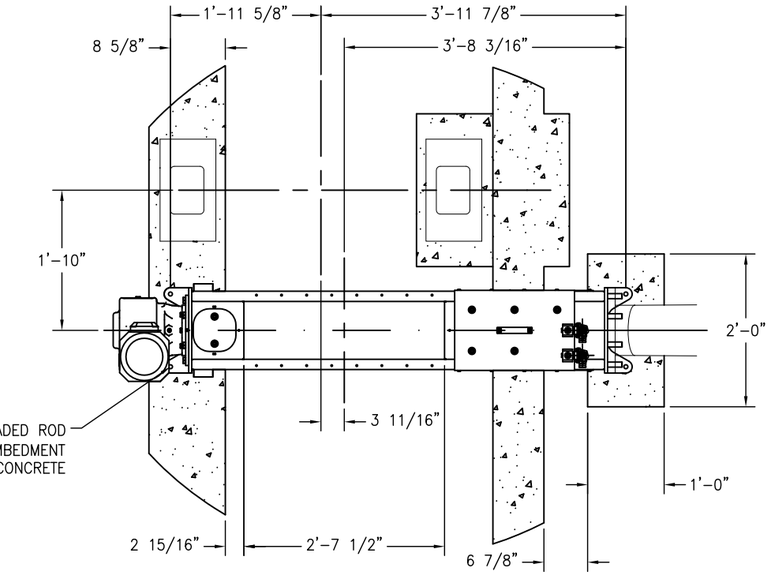
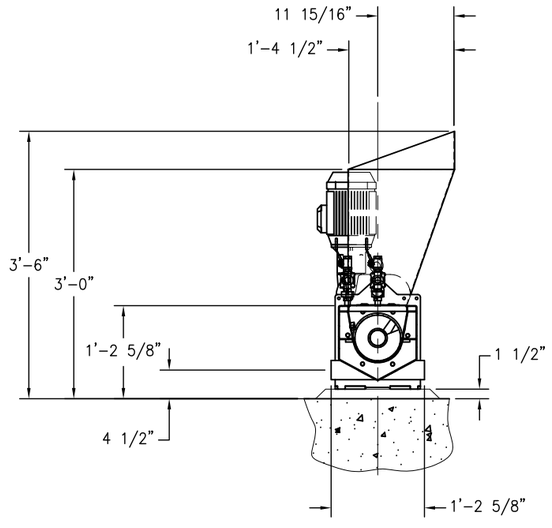




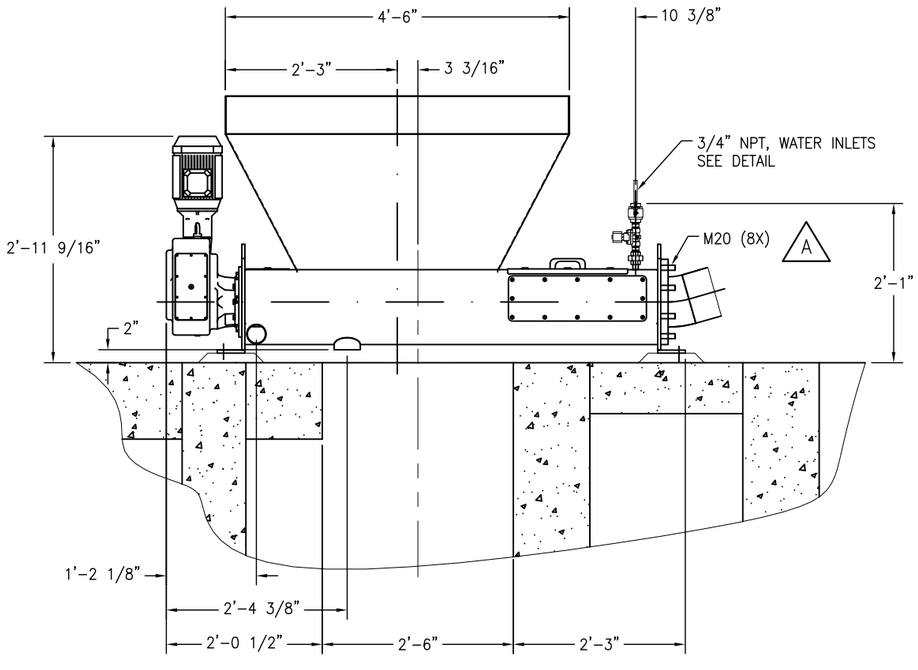
SCREW WASH PRESSS – PLAN
CHANNEL 1



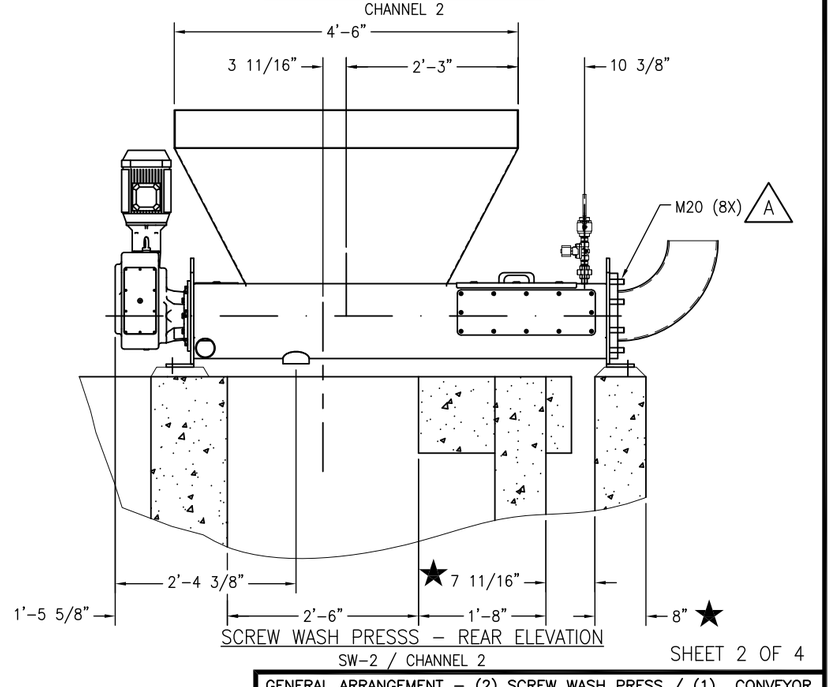
SCREW WASH PRESSS – PLAN
CHANNEL 2



SCREW WASH PRESSS – ELEVATION
TYP CHANNELS 1 & 2



SCREW WASH PRESSS – REAR ELEVATION
SW-1 / CHANNEL 1



SCREW WASH PRESSS – REAR ELEVATION
SW-2 / CHANNEL 2

GENERAL ARRANGEMENT – (2) SCREW WASH PRESS / (1) CONVEYOR

DESCRIPTION								
SWP20-80 / CVH260-5000								
TYPE				SIZE				
				NONE	09-11	MWB	PCH	JPW
DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD

ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z-024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

REVISION	BY	CHKD	DATE	LTR
UPDATED PER CUSTOMER COMMENTS	MWB	JPW	10-24-11	A

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
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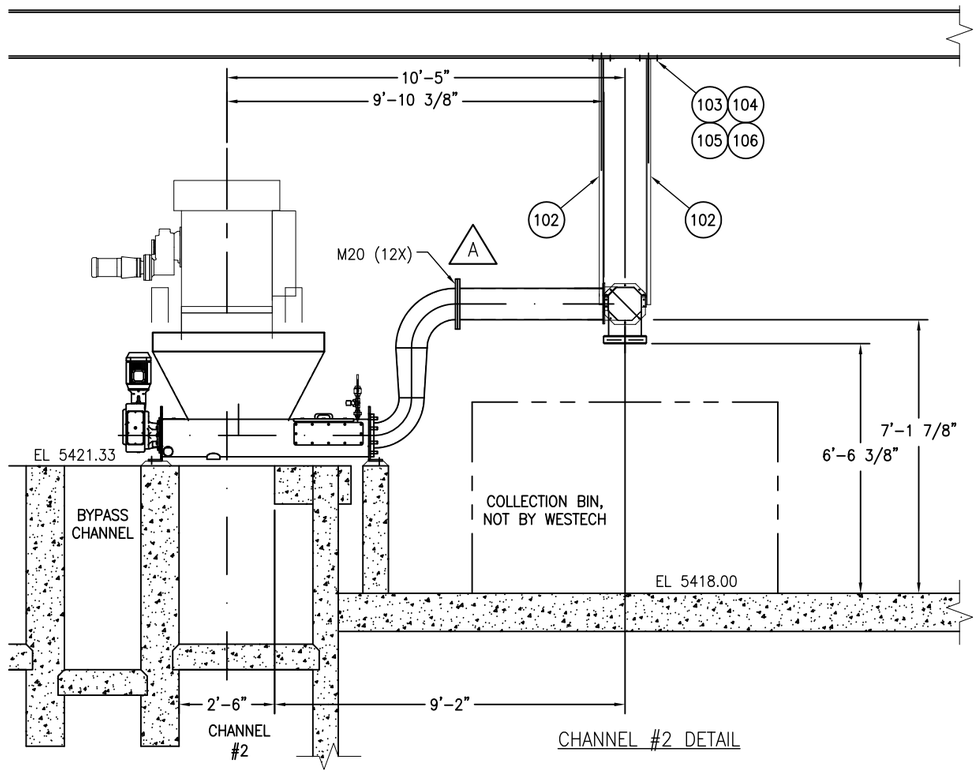
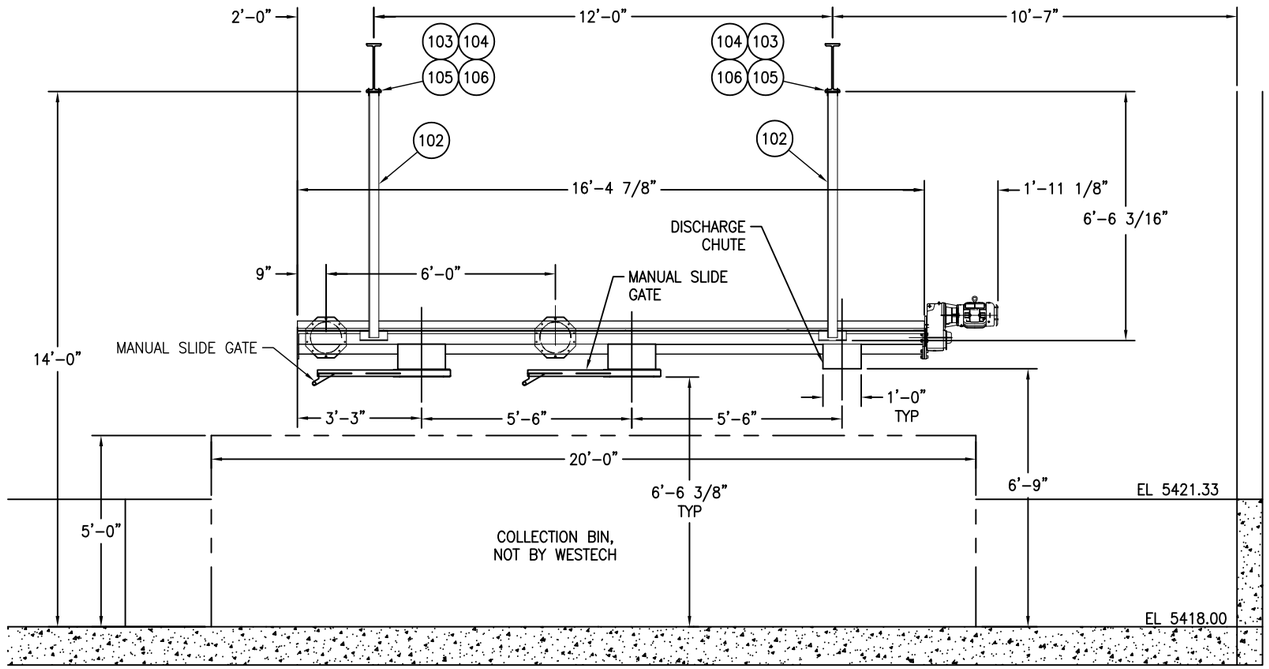
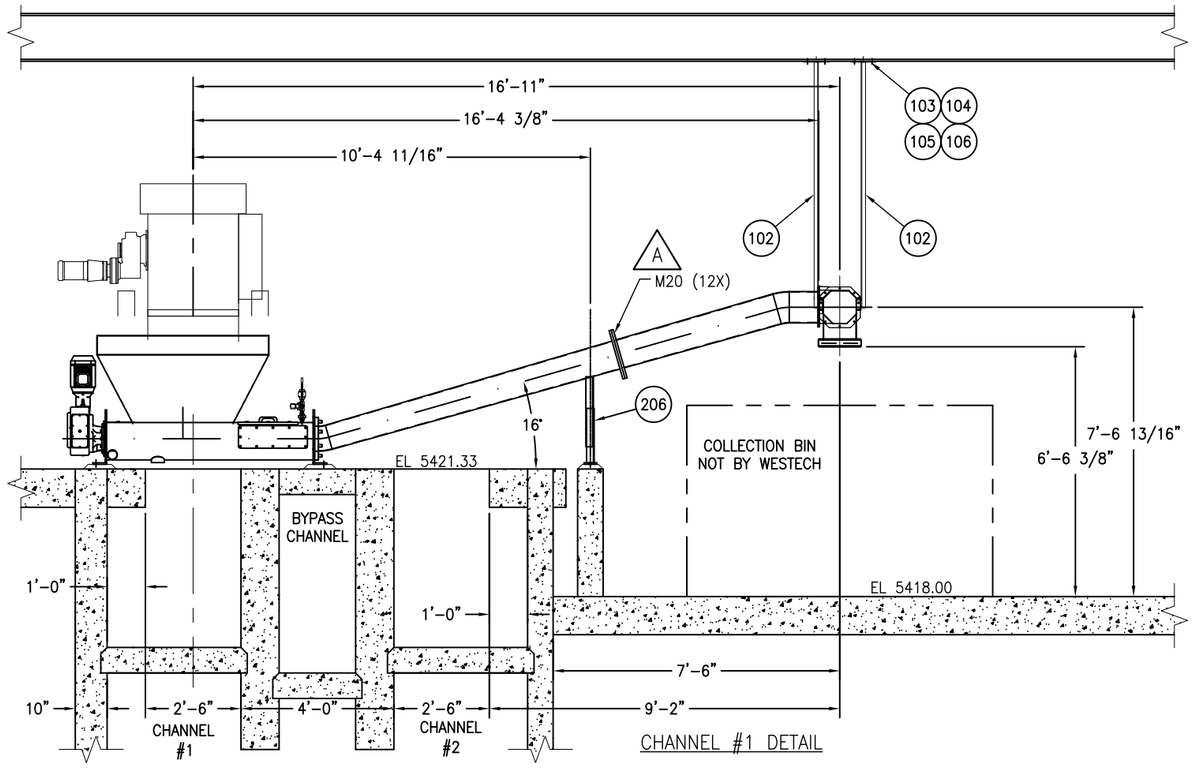


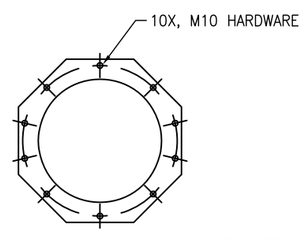
CHANNEL #2 DETAIL



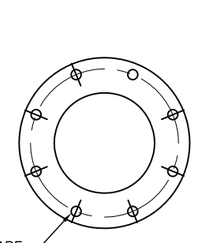
CONVEYOR DETAIL



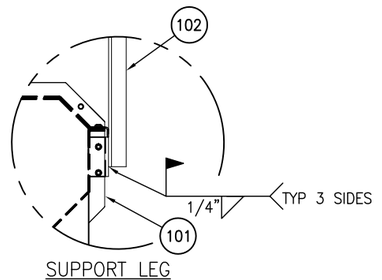
CHANNEL #1 DETAIL



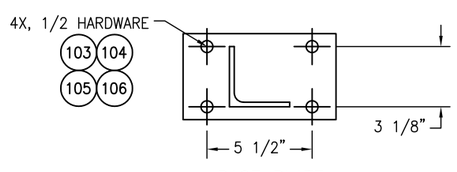
FLANGE
DISCHARGE PIPE / CONVEYOR
TYP 2 PLACES



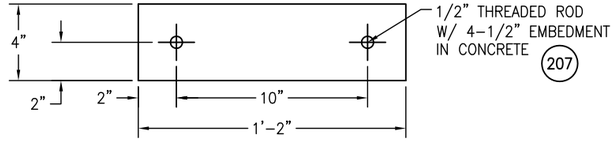
FLANGE
SCREW WASH PRESS / DISCHARGE PIPE
TYP 2 PLACES



SUPPORT LEG
COONVEYOR, TYP 4 PLACES



BASE PLATE
CONVEYOR, TYP 4 PLACES



BASE PLATE
SUPPORT PIPE, IT #206

GENERAL ARRANGEMENT – (2) SCREW WASH PRESS / (1) CONVEYOR

DESCRIPTION: SWP20-80 / CVH260-5000

TYPE:

SIZE:

DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	09-11	MWB	PCH	JPW

ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z-024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

REVISION	BY	CHKD	DATE	LTR
UPDATED PER CUSTOMER COMMENTS	MWB	JPW	10-24-11	A

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
21393AB-D101	21393AB	A

1. A STAR DENOTES VARIANCE FROM CONTRACT DOCUMENTS AND SHOULD BE PARTICULARLY NOTED. ★

2. CONTRACTOR TO VERIFY OR SUPPLY ON APPROVAL ALL DIMENSIONS SHOWN IN CLOUD.

3. THE FOLLOWING DEFINES THE RESPONSIBILITY OF WESTECH ENGINEERING INC. WITH REGARD TO THE INFORMATION AND DIMENSIONS SHOWN ON THE DRAWINGS.

   (A) THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR INSTALLATION PURPOSES UNTIL IT BEARS THE APPROVAL OF THE OWNER, THE ENGINEER OR THEIR DULY AUTHORIZED REPRESENTATIVE.

   (B) DIMENSIONS, LOADS, AND OTHER INFORMATION ARE PROVIDED TO ACCOMMODATE THE EQUIPMENT TO THE STRUCTURE AS SHOWN.

   (C) WESTECH IS NOT RESPONSIBLE FOR CONCRETE DESIGN. THE CUSTOMER IS TO PROVIDE REINFORCING STEEL AND DETERMINE SIZES TO SUIT LOCAL REQUIREMENTS.

   (D) WESTECH IS NOT RESPONSIBLE FOR DAMAGE, INJURY OR LOSS RESULTING FROM INCORPORATION OR USE OF THIS EQUIPMENT.

   (E) CHARGES FOR MODIFICATIONS, ADDITIONS OR CORRECTIONS TO THE EQUIPMENT WILL NOT BE ACCEPTED BY WESTECH, UNLESS PRIOR APPROVAL IS OBTAINED IN WRITING FROM AN AUTHORIZED WESTECH REPRESENTATIVE.

4. WESTECH DOES NOT FURNISH CONCRETE, GROUT, CONCRETE REINFORCING, PIPING, VALVES, PIPE SUPPORTS OR FITTINGS, WALL BRACKETS, ELECTRICAL WIRING, CONDUIT, OR ELECTRICAL EQUIPMENT, ERECTION, FIELD PAINTING OR PAINT, FIELD WELDING OR WELD ROD, WATER FOR TESTING, GREASE, OR LUBRICATING OIL, EXCEPT AS SPECIFICALLY NOTED.

5. DRIVE SHALL BE FINISHED WITH MANUFACTURER'S STANDARD PAINT.

6. SURFACE PREPARATION TO CONSIST OF:
   STAINLESS STEEL: SOLVENT CLEANED
   STEEL SCREW: SSPC–SP10 NEAR WHITE METAL BLAST

7. SHOP PAINTING TO CONSIST OF:
   STAINLESS STEEL: NONE
   STEEL SCREWS: ONE (1) COAT OF EPOXY PRIMER (3–6 MILS)

8. ANCHORS:
   UNIT ANCHORAGE DESIGNED AROUND RED HEAD A7 ADHESIVE SYSTEM.
   ANCHOR BOLT DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.
   USE BASE PLATES & BRACKETS AS TEMPLATES TO LOCATE ANCHOR BOLTS.

9. ALL ASSEMBLY FASTENERS TO BE: 18–8 SS

NO CHANGES THIS SHEET	MWB	JPW	10-24-11	A
REVISION	BY	CHKD	DATE	LTR

GENERAL NOTES – (2) SCREW WASH PRESS / (1) CONVEYOR

DESCRIPTION

SWP20–80 / CVH260–5000

TYPE

SIZE

DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	09–11	MWB	PCH	JPW

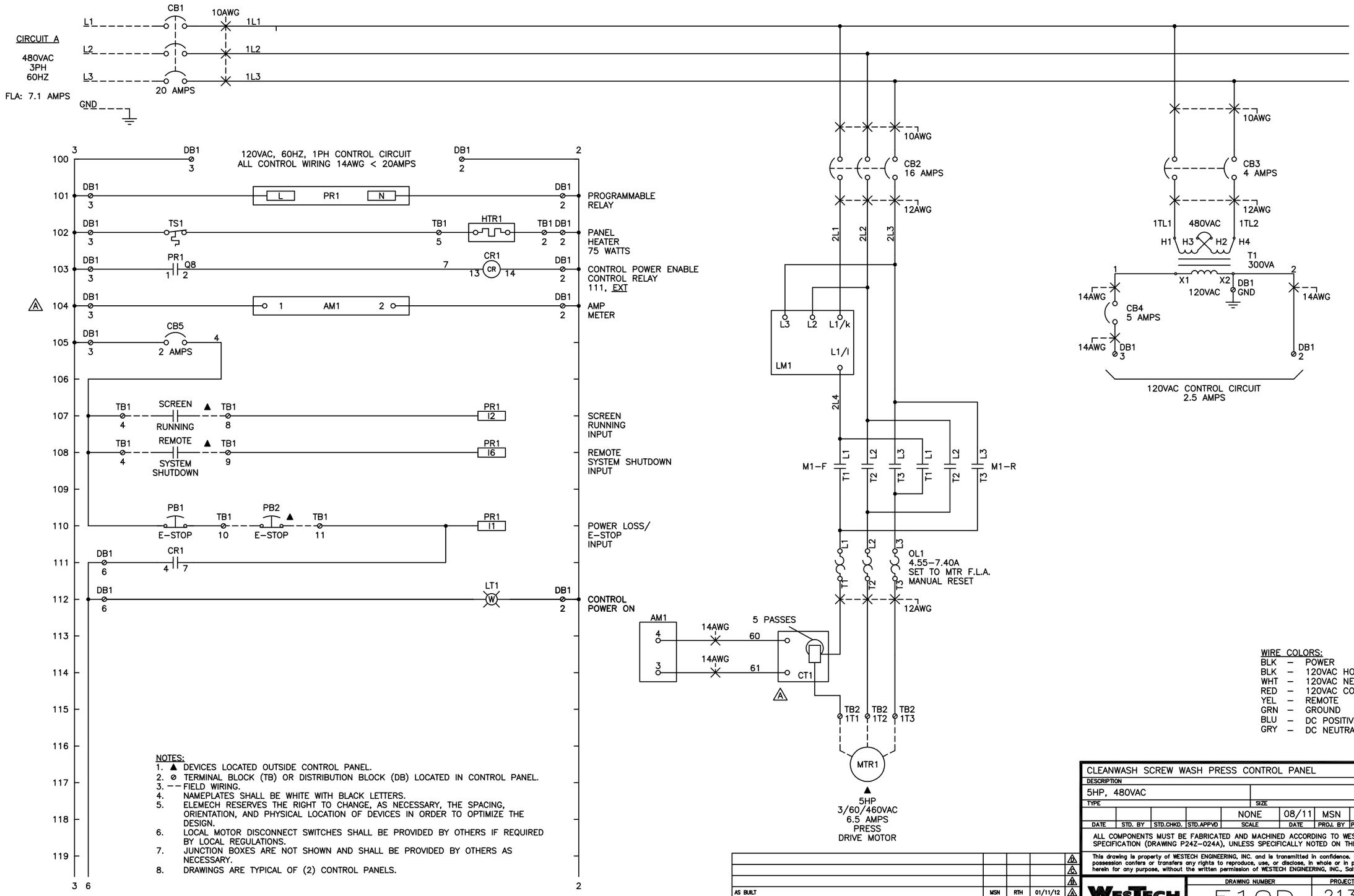
ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z–024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
21393AB–D101	21393AB	A

Item No	Component	Description	Manufacturer Part Number	QTY	Device
CleanWash Control Panel (Quantity: 2)					
1	00-000-000	Wire, Hardware, Wire labels, etc.	EleMech: Miscellaneous	1	
2	10-069-001	Wireway Duct Cover, 1"W, 6 Ft. Section, w/Panduit F Series	Panduit: C1WH6	6	
3	10-069-007	Wireway Duct, 1"Wx3"H, 6 Foot Section	Panduit: F1X3WH6	6	
4	25-000-A001	Legendplate Assembly, Yellow E-Stop, Standard Encl.	EleMech: 25-000-A001 Assembly	1	
5	25-000-A002	Legendplate Assembly, White, Black Text, Standard Encl.	EleMech: 25-000-A002 Assembly	10	
6	25-000-A019	Nameplate Assembly, White: Power Supply - 3/60/480VAC	EleMech: 25-000-A019 Assembly	1	
7	42-063-007	Terminal Block, Din Rail, 35MM Wide, 15 High, 2 Meters Long	Wieland: 98.370.1000	1	
8	52-000-000	Label, Underwriters Laboratories 508A, w/Decal Set	EleMech: 508A	1	
9	08-145-002	Digital Panel Meter, AC Ammeter, 0-5 Amps, NEMA 4X, CT Rated	Red Lion: PAXLIT00	1	AM1
10	03-001-A002	Circuit Breaker Assembly, 3 Pole, 480VAC, 20A, T1, 8" Depth	ABB: T1N020TL Assembly	1	CB1
11	03-056-071	Circuit Breaker, 3 Pole, 480VAC, 16A, 10kA, UL489, Type D	Siemens: 5SJ4316-8HG42	1	CB2
12	03-056-024	Circuit Breaker, 1 Pole, 240VAC, 2A, 14kA, UL489, Type C	Siemens: 5SJ4102-7HG40	1	CB5
13	06-058-011	Control Relay, 3PDT,120VAC, 11Pin Spade, Indicator, Operator	Square D: RXM3AB2F7	2	CR1,2
14	06-058-012	Control Relay, Bus Jumper, 2-Pole, w/Telemec. RXM Relay	Square D: RXZ S2	1	CR1,2
15	38-058-003	Socket, 11 Pin Spade, Din, Screw Term., 3Tier, 250V w/3-Pole	Square D: RXZE2S111M	2	CR1,2
16	77-167-003	Current Transformer, Molded Case, 50:5, Single Phase	Crompton: 2SFT-500	1	CT1
17	07-063-000	Distribution Block, End Cover, 4 Pole, 300V,10A, w/WK4E\V\VB	Wieland: 07.311.4053.1	1	DB1
18	07-063-001	Distribution Block, Jumper, 4 Pole, 300V,10A, w/WK4E\V\VB	Wieland: Z7.210.3427	3	DB1
19	07-063-002	Distribution Block, Single Pole, 10A, 300V, WK4E\V\VB	Wieland: 57.404.6955.1	9	DB1
20	42-063-004	Terminal Block, Ground, 30A, 600V, 6MM Wide, w/WK4/U	Wieland: 57.504.9055.0	2	DB1
21	11-035-027	Enclosure, NEMA 4, Painted Steel, 24"Hx24"Wx8"D, C. Hinge	Hoffman: A-24H24BLP	1	EN1
22	11-035-133	Sub-Panel, Painted Steel, w/24"Hx24"W C. Hinge Encl	Hoffman: A-24P24	1	EN1
23	15-011-000	Ground Lug	Blackburn: L70	2	GND
24	16-052-005	Elapsed Time Meter, 6 Digit, Round, 3-Hole, NEMA 4X	Redington: 722-0004	1	HM1
25	16-052-006	Elapsed Time Meter, Gasket, NEMA 4X (Use w/722-0004)	Redington: 5003-011	1	HM1
26	17-062-001	Heater, Silicone Rubber, Flat, 120VAC, 75 Watts, w/12" Leads	Watlow: 030050C1-A001B	1	HTR1
27	52-137-003	Label, Caution: Heater Element, 1.5"Wx0.75"H, White/Red	Nameplate Tech: 52-137-003	1	HTR1
28	52-137-002	Label, Multiple Supply Sources, Warning, 2.5"Wx1.5"H, Yellow	Nameplate Tech: 52-137-002	1	LBL1
29	52-137-000	Label, High Voltage, Danger, 2.25"Wx4.0"H, White/Black/Red	Nameplate Tech: 52-137-000	1	LBL2
30	34-001-003	PM, 1/3PH, 110-500VAC, 2-20A, 2)SPDT, 120VAC	ABB: 1SVR 450 330 R0100	1	LM1
31	32-005-046	Lens, Pilot Light, White, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26W	1	LT1
32	32-005-048	Pilot light, NEMA 4X, 120VAC, Transformer, No Lens	Allen-Bradley: 800H-PR16	4	LT1-4

Item No	Component	Description	Manufacturer Part Number	QTY	Device
33	32-005-044	Lens, Pilot Light, Green, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26G	1	LT2
34	32-005-045	Lens, Pilot Light, Red, NEMA 4X, Standard, w/A-B 800H	Allen-Bradley: 800T-N26R	2	LT3,4
35	22-018-002	Motor Starter, Reversing, NEMA 0, 120VAC Coil, w/OL	Cutler-Hammer: AN56BNOAC	1	M1-F/R
36	22-018-007	Aux. Contact, Top mounted, 3NO/1NC, w/C-H Freedom	Cutler-Hammer: C320KGT14	2	M1-F/R
37	25-000-A010	Nameplate Assembly, White, Black Text, 1"Hx3"W	EleMech: 25-000-A010 Assembly	3	NP1-3
38	28-018-008	Overload Relay Heater Pack, 3PH, 4.55-7.40A, w/Freedom, C20	Cutler-Hammer: H2009B-3	1	OL1
39	29-005-010	Pushbutton E-Stop, NEMA 4X, Oper+1NCLB, Twist Rel. Red Head	Allen-Bradley: 800H-FRXT6D4	1	PB1
40	02-005-000	Contact Block, 1NO/1NC, w/A-B 800 Series	Allen-Bradley: 800T-XA	1	PB3
41	29-005-037	Pushbutton, NEMA 4X, Oper+1NC, Flush Head, Black	Allen-Bradley: 800H-AR2D2	1	PB3
42	33-183-004	PR, Zelio, 120VAC, 12)120VAC In, 8)Relay Out	Telemecanique: SR2B201FU	1	PR1
43	WES-179-P006	Program, PR, Zelio, SR2B201FU, Standard	EleMech: WES-179-P006	1	PR1
44	13-000-A000	Spare Parts Box Assembly, Din Rail Mount	EleMech: 13-000-A000 Assembly	1	SP1
45	39-005-009	Selector Switch, NEMA 4X, 3 Pos. Maintained, 1NO-1NC	Allen-Bradley: 800H-JR2A	3	SS1,3,4
46	39-005-011	Selector Switch, Nema 4X, 3 Pos. Spring Fr. Right, 1NO-1NC	Allen-Bradley: 800H-JR5A	1	SS2
47	41-018-A026	Control Transformer Assembly, 480-120VAC, 300VA, w/C-Breaker	Cutler-Hammer: C0300E2A Assembly	1	T1,CB3,4
48	42-063-009	Terminal Block, End Clamp, w/WKN10/U	Wieland: Z5.522.8553	5	TB,DB
49	42-063-008	Terminal Block, Labels, Blank, w/WK4/U	Wieland: Z4.242.6353	22	TB1
50	42-063-015	Terminal Block, Jumper, w/WK4/U, 02 pole, Insulated	Wieland: Z7.281.1227	2	TB1
51	42-063-033	Terminal Block, Single Pole, 30A, 600V, WKF4/U, Spring Clamp	Wieland: 56.704.0055	32	TB1,2
52	42-063-034	Terminal Block, End Plate, Beige, w/WKFN 4/U	Wieland: 07.312.9255	2	TB1,2
53	42-063-000	Terminal Block, Labels, Custom Printed, w/WK4/U	Wieland: 04.242.6353-CUSTOM	64	TB1,2,DB1
54	46-034-000	Thermostat, for heater control, N.C.contact, 6 amp,30-140 F.	Stego: 01140.9-00	1	TS1
LCS, 1 Hole, Nema 4/7/9, E-Stop (Quantity: 2)					
55	25-000-A005	Legendplate Assembly, Yellow E-Stop, LCS Encl.	EleMech: 25-000-A005 Assembly	1	
56	53-053-003	Conduit, Lockwasher, 3/4", Use w/3/4" Nipple	Steel City: LN102	1	
57	11-004-004	Local Control Station, NEMA 4/7/9, 1 Hole, 3/4"NPT Holes	Akron Electric: CXI-333-X1-N4-N5-2RP	1	LCS1
58	29-005-009	Pushbutton E-Stop, NEMA 7/9, Oper+1NCLB, Push-Pull Red Head	Allen-Bradley: 800H-FPX6D4	1	PB2
59	29-005-063	Pushbutton, Padlocking Cover, w/ 800T/H 30.5mm only	Allen-Bradley: 800H-N140	1	PB2



NOTES:
1. ▲ DEVICES LOCATED OUTSIDE CONTROL PANEL.
2. ⊘ TERMINAL BLOCK (TB) OR DISTRIBUTION BLOCK (DB) LOCATED IN CONTROL PANEL.
3. – – FIELD WIRING.
4. NAMEPLATES SHALL BE WHITE WITH BLACK LETTERS.
5. ELEMECH RESERVES THE RIGHT TO CHANGE, AS NECESSARY, THE SPACING, ORIENTATION, AND PHYSICAL LOCATION OF DEVICES IN ORDER TO OPTIMIZE THE DESIGN.
6. LOCAL MOTOR DISCONNECT SWITCHES SHALL BE PROVIDED BY OTHERS IF REQUIRED BY LOCAL REGULATIONS.
7. JUNCTION BOXES ARE NOT SHOWN AND SHALL BE PROVIDED BY OTHERS AS NECESSARY.
8. DRAWINGS ARE TYPICAL OF (2) CONTROL PANELS.

WIRE COLORS:
BLK – POWER
BLK – 120VAC HOT
WHT – 120VAC NEUTRAL
RED – 120VAC CONTROL
YEL – REMOTE
GRN – GROUND
BLU – DC POSITIVE/CONTROL
GRY – DC NEUTRAL

REVISION	BY	CHKD	DATE	LTR
AS BUILT	MSN	RTH	01/11/12	A

CLEANWASH SCREW WASH PRESS CONTROL PANEL

DESCRIPTION: 5HP, 480VAC

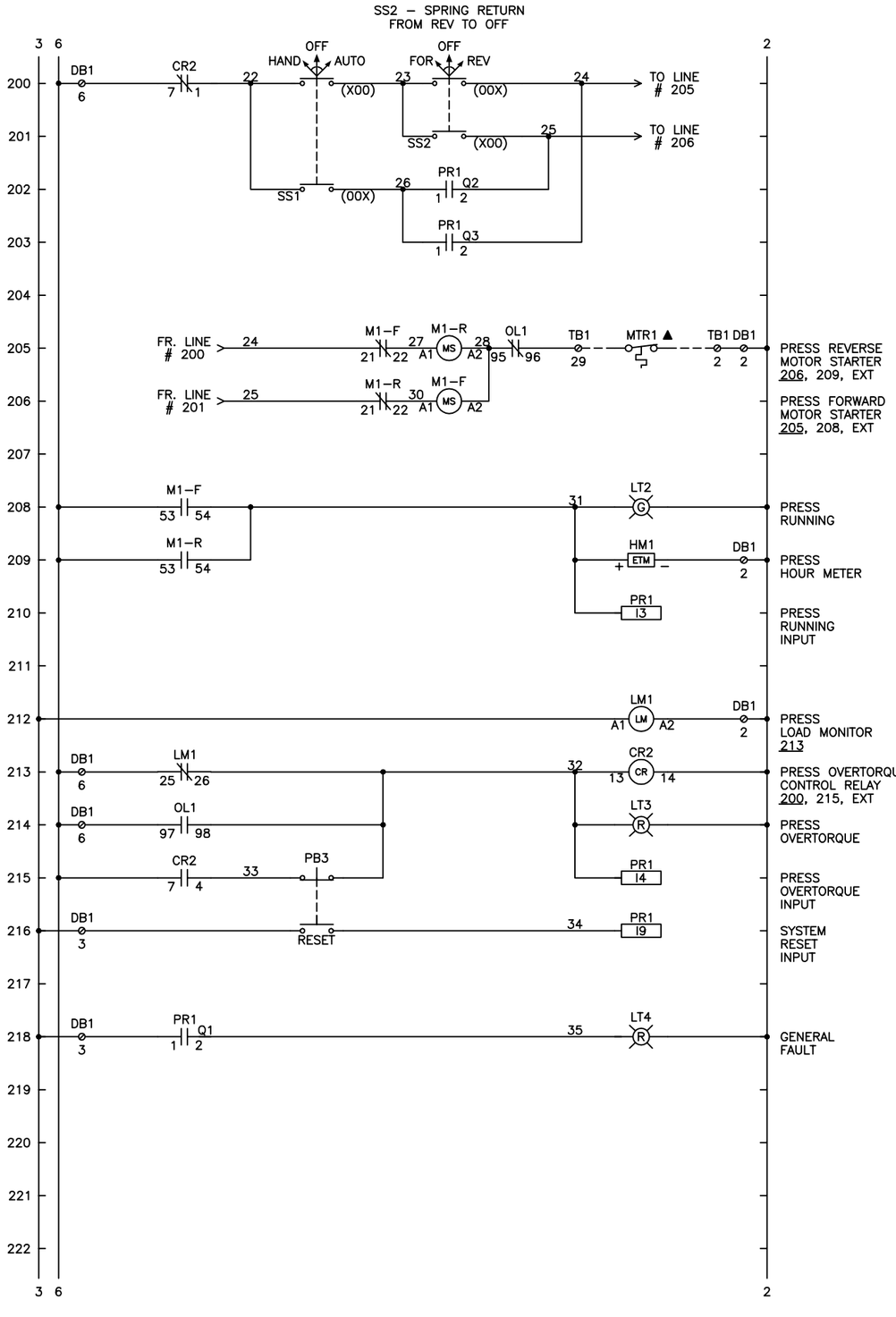
TYPE: | SIZE: NONE

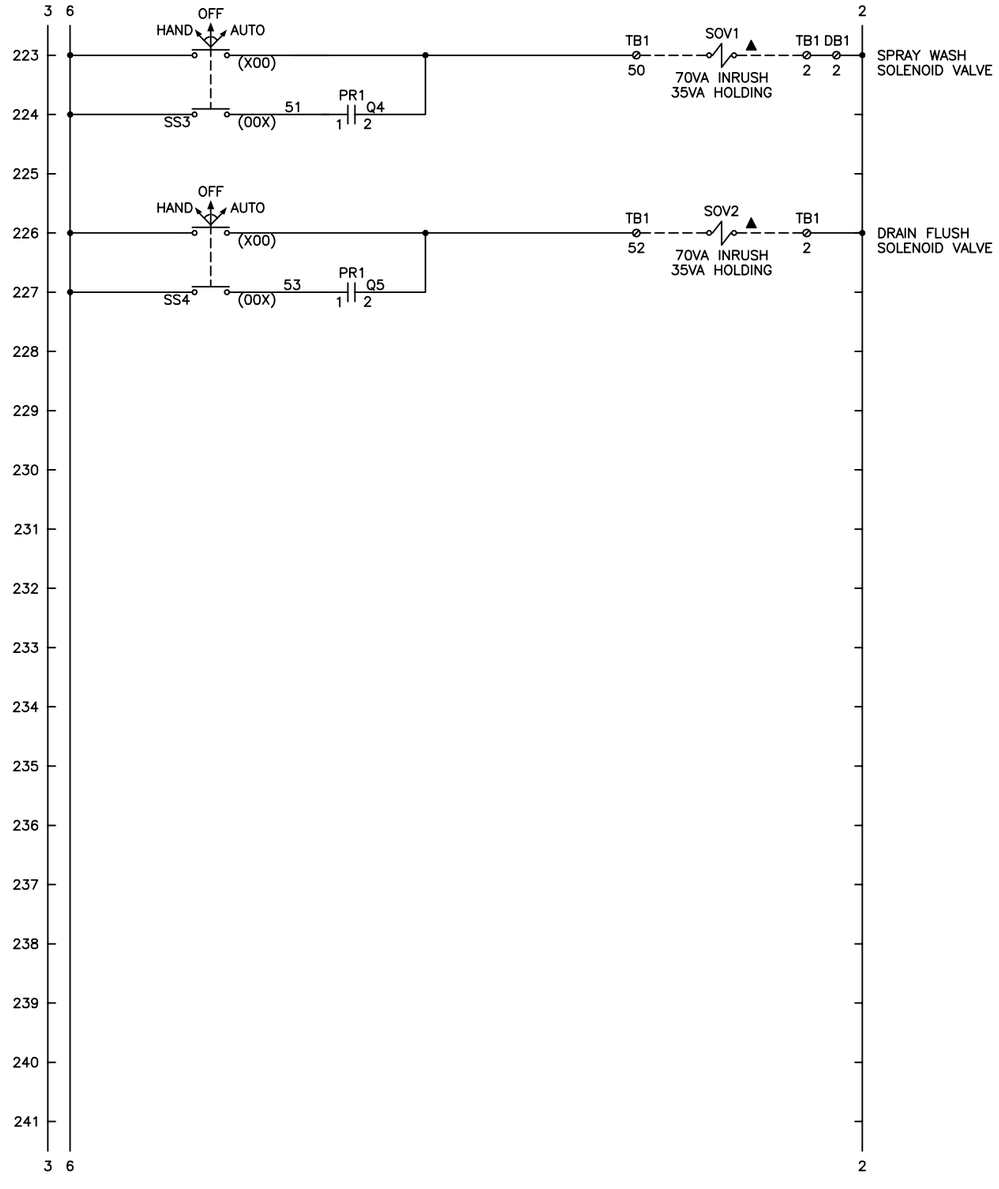
DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	08/11	MSN	RTH	RTH

ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z-024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
E10D	21393A	A





REVISION	BY	CHKD	DATE	LTR
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CLEANWASH SCREW WASH PRESS CONTROL PANEL

DESCRIPTION: 5HP, 480VAC

TYPE | SIZE

DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	08/11	MSN	RTH	RTH

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
E10D	21393A	A

SEQUENCE OF OPERATION

CONTROL POWER ON–DELAY:
EACH TIME THE CONTROL PANEL POWER SUPPLY IS CYCLED, THE PROGRAMMABLE RELAY WILL ALLOW ALL SOLID STATE DEVICES TO BECOME FULLY ENERGIZED BEFORE ENABLING THE CONTROL POWER CIRCUIT.

PRESS MODES OF OPERATION:
HAND: WHEN THE PRESS SELECTOR IS IN THE HAND POSITION, THE PRESS WILL OPERATE PER THE PRESS FOR–OFF–REV SELECTOR. THE PRESS FOR–OFF–REV SELECTOR WILL SPRING RETURN FROM REV TO OFF.
AUTO: WHEN THE PRESS SELECTOR IS IN THE AUTO POSITION, THE PRESS WILL OPERATE PER THE WASH CYCLE AUTO SEQUENCE DETAILED BELOW.

SPRAY WASH MODES OF OPERATION:
HAND: WHEN THE SPRAY WASH SELECTOR IS IN THE HAND POSITION, THE SPRAY WASH WILL RUN CONTINUOUSLY.
AUTO: WHEN THE SPRAY WASH SELECTOR IS IN THE AUTO POSITION, THE SPRAY WASH WILL OPERATE PER THE WASH CYCLE AUTO SEQUENCE DETAILED BELOW.

DRAIN FLUSH MODES OF OPERATION:
HAND: WHEN THE DRAIN FLUSH SELECTOR IS IN THE HAND POSITION, THE DRAIN FLUSH WILL RUN CONTINUOUSLY.
AUTO: WHEN THE DRAIN FLUSH SELECTOR IS IN THE AUTO POSITION, THE DRAIN FLUSH WILL OPERATE PER THE WASH CYCLE AUTO SEQUENCE DETAILED BELOW.

WASH CYCLE AUTO SEQUENCE:
A PRESS WASH CYCLE WILL BE INITIATED ONCE THE FEEDING SCREEN HAS RUN FOR THE TIME SET IN THE SCREEN ACCUMULATION RUN TIMER. ONCE A WASH CYCLE IS INITIATED, THE PRESS WILL RUN FORWARD FOR THE TIME SET IN THE PRESS INITIAL RUN TIMER. ONCE THE INITIAL RUN TIMER IS COMPLETE, THE PRESS WILL RUN FORWARD FOR THE TIME SET IN THE PRESS FORWARD RUN TIMER, THEN DWELL FOR THE TIME SET IN THE PRESS FOR–REV DWELL TIMER. THE PRESS WILL THEN RUN REVERSE FOR THE TIME SET IN THE PRESS REVERSE RUN TIMER, AND DWELL FOR THE TIME SET IN THE PRESS REV–FOR DWELL TIMER. EACH TIME THE PRESS FORWARD RUN TIMER STARTS, THE SPRAY WASH SOLENOID WILL OPEN FOR THE TIME SET IN THE SPRAY WASH RUN TIMER. THE PRESS WILL COMPLETE THE NUMBER OF FORWARD–DWELL–REVERSE–DWELL CYCLES SET IN THE PRESS WASH CYCLE COUNTER. ONCE THE PRESS HAS COMPLETED THE SET NUMBER OF CYCLES, THE PRESS WILL RUN CONTINUOUSLY FORWARD FOR THE TIME SET IN THE PRESS DISCHARGE TIMER. ONCE THE DISCHARGE TIMER REACHES ITS SET–POINT, THE DRAIN FLUSH SOLENOID VALVE WILL OPEN FOR THE TIME SET IN THE DRAIN FLUSH RUN TIMER. ONCE THE DRAIN FLUSH SOLENOID VALVE CLOSES, THE WASH CYCLE WILL BE COMPLETE.

NOTES:
1. IF THE SPRAY WASH RUN TIMER SETTING IS GREATER THAN THE COMBINED TOTAL OF THE PRESS FORWARD, REVERSE, AND DWELL TIMERS, THE SPRAY WASH SOLENOID VALVE WILL REMAIN OPEN FOR THE ENTIRE WASH CYCLE.
2. PRESSING AND HOLDING THE SYSTEM RESET PUSHBUTTON FOR 3 SECONDS WILL INITIATE A WASH CYCLE IF THE PRESS SELECTOR IS IN THE AUTO POSITION.

EMERGENCY STOP:
THE PRESS, AND ALL SPRAY WASHES WILL STOP IMMEDIATELY, THE CONTROL POWER ON LIGHT WILL DE–ENERGIZE, AND THE PRESS GENERAL FAULT LIGHT WILL ENERGIZE, IF ANY OF THE E–STOP PUSHBUTTONS ARE PRESSED. TO RESET, ENSURE ALL THE E–STOPS ARE ENABLED AND PRESS THE SYSTEM RESET PUSHBUTTON.

REMOTE SYSTEM SHUTDOWN:
WHEN THE REMOTE SYSTEM SHUTDOWN SIGNAL IS RECEIVED THE PRESS AND ALL SPRAY WASHES WILL STOP IMMEDIATELY, THE CONTROL POWER ON LIGHT WILL DE–ENERGIZE, AND THE PRESS GENERAL FAULT LIGHT WILL ENERGIZE. THE SYSTEM WILL RESET WHEN THE REMOTE SYSTEM SHUTDOWN SIGNAL IS REMOVED. A MANUAL RESET WILL NOT BE REQUIRED.

FAULTS:
1. A FAULT OCCURS WHEN THE PRESS LOAD MONITOR IS TRIPPED.
2. A FAULT OCCURS WHEN THE PRESS MOTOR STARTER THERMAL OVERLOAD IS TRIPPED.
3. A FAULT OCCURS WHEN THE PRESS MOTOR THERMOSTAT IS TRIPPED.

– WHEN FAULTS 1 OR 2 OCCUR, THE PRESS WILL STOP IMMEDIATELY, THE PRESS GENERAL FAULT LIGHT WILL BE ENERGIZED, AND THE PRESS OVERTORQUE LIGHT WILL BE ENERGIZED.
– WHEN FAULT 3 OCCURS, THE PRESS WILL STOP IMMEDIATELY.
– FAULT 1 CAN BE RESET BY PRESSING THE SYSTEM RESET PUSHBUTTON.
– FAULT 2 CAN BE RESET BY PRESSING THE RESET BUTTON LOCATED ON THE MOTOR STARTER THERMAL OVERLOAD.
– FAULT 3 WILL AUTOMATICALLY RESET.

NOTE: THE GENERAL FAULT CONTACT WILL CLOSE DUE TO ANY OF THE FOLLOWING CONDITIONS:
- FAULTS 1 OR 2 OCCUR
- ANY OF THE E–STOP PUSHBUTTONS ARE PRESSED
- THE REMOTE SHUTDOWN SIGNAL IS RECEIVED.
- INPUT POWER IS LOST

DEVICE SETTINGS

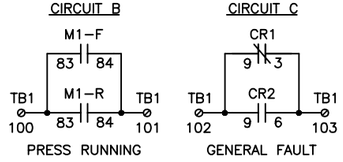
LM1 – MOTOR LOAD MONITOR

DIAL	SETTING
COS MAX	MIN
COS MIN	MIN
TIME S	MIN
TIME R	MIN

NOTES:
1. THE LOAD MONITOR DIAL SHALL BE SET TO MINIMUM FROM THE FACTORY.
2. FIELD CONFIGURATION SHALL BE PERFORMED BY THE STARTUP TECHNICIAN PER THE APPROPRIATE TECHNICAL DOCUMENT.

HTR1

HEATER ON/OFF	40 °F

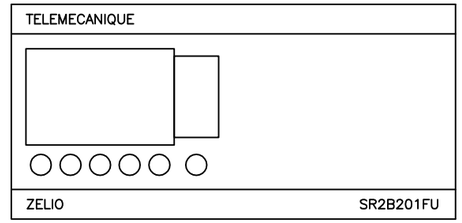


MAX. CONTROLLED LOAD: 10A @ 120VAC

NOTE: BRANCH CIRCUIT PROTECTION PROVIDED BY OTHERS PER N.E.C.

DEVICE SETTINGS

PR1 – I/O



PR INPUTS

I1	POWER LOSS / E–STOP
I2	SCREEN RUNNING
I3	PRESS RUNNING
I4	PRESS OVERTORQUE
I5	SPARE
I6	REMOTE SYSTEM SHUTDOWN
I7	SPARE
I8	SPARE
I9	SYSTEM RESET
IA	SPARE
IB	SPARE
IC	SPARE

PR OUTPUTS

Q1	GENERAL FAULT
Q2	PRESS CALL TO RUN FORWARD
Q3	PRESS CALL TO RUN REVERSE
Q4	SPRAY WASH CALL TO RUN
Q5	DRAIN FLUSH CALL TO RUN
Q6	SPARE
Q7	SPARE
Q8	CONTROL POWER ENABLE

PR1 – SETTINGS

BIT REF.	DESCRIPTION	TIMER RESOLUTION	FACTORY SETTINGS
CC1–P	PRESS WASH CYCLE COUNTER	CYCLES	6
TT–1t	SCREEN RUN ACCUM. TIMER (INITIATES PRESS)	MIN:SEC	1:00
TT–2t	PRESS INITIAL RUN TIME	MIN:SEC	00:03
TT–3t	PRESS FORWARD RUN TIME	MIN:SEC	00:10
TT–4t	PRESS FOR–REV DWELL RUN TIME	MIN:SEC	00:02
TT–5t	PRESS REVERSE RUN TIME	MIN:SEC	00:00
TT–6t	PRESS REV–FOR DWELL TIME	MIN:SEC	00:00
TT–7t	SPRAY WASH RUN TIME	MIN:SEC	00:05
TT–8t	PRESS DISCHARGE TIME	MIN:SEC	00:30
TT–9t	DRAIN FLUSH RUN TIME	MIN:SEC	00:10

NOTES:
1. ABOVE IS A LISTING OF ALL THE FIELD SELECTABLE SETTINGS IN THE CONTROLLER.

PR1 – SETPOINT CHANGE INSTRUCTIONS

TO ALTER THE VALUE OF A TIMER OR COUNTER:

1. PRESS THE GREEN "MENU/OK", PRESS ARROW DOWN TO "PARAMETER". PRESS "MENU/OK"
2. TO ACCESS THE REQUIRED TIMER PRESS THE "UP" ARROW KEY UNTIL THE DESIRED TIMER IS DISPLAYED.
3. PRESS THE "RIGHT" ARROW UNTIL TIME VALUE FLASHES.
4. MODIFY THE TIME VALUE USING THE "UP" OR "DOWN" ARROW KEYS.
5. VALIDATE THE CHANGES BY PRESSING THE "MENU/OK", PRESS "MENU/OK" AGAIN WHEN ASKED TO CONFIRM CHANGES.
6. PRESS "MENU/OK" TO RETURN TO MAIN SCREEN.

REVISION	BY	CHKD	DATE	LTR
				A
				A
				A
AS BUILT	MSN	RTH	01/11/12	A

CLEANWASH SCREW WASH PRESS CONTROL PANEL

DESCRIPTION: 5HP, 480VAC

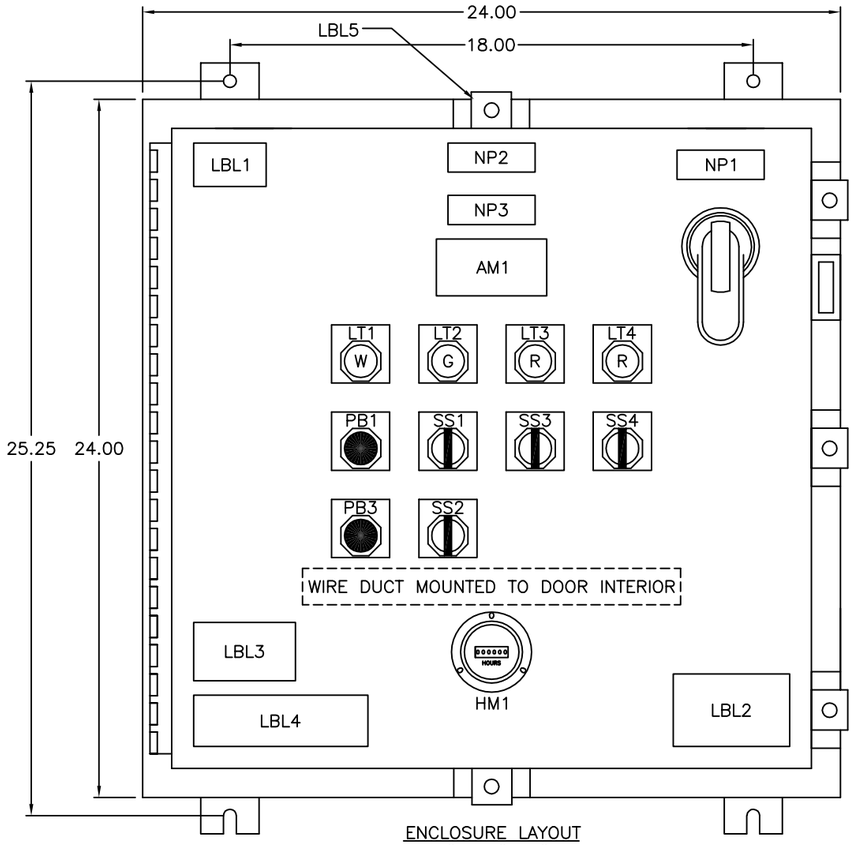
TYPE | SIZE

DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD
				NONE	08/11	MSN	RTH	RTH

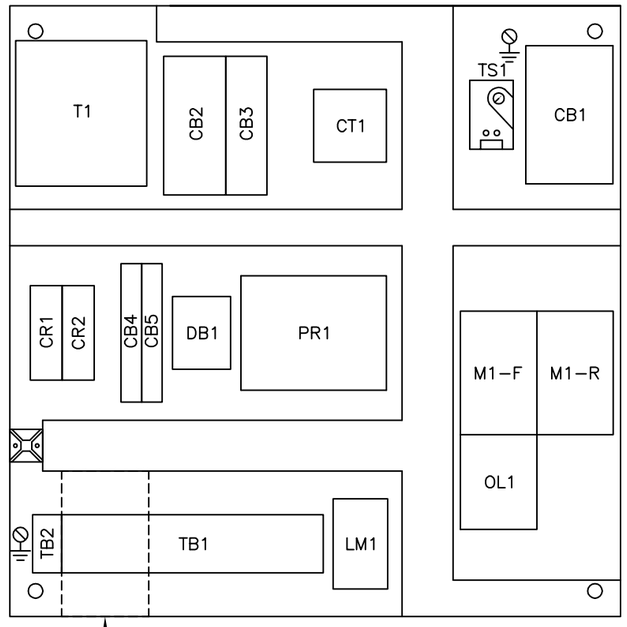
ALL COMPONENTS MUST BE FABRICATED AND MACHINED ACCORDING TO WESTECH STANDARD SPECIFICATION (DRAWING P24Z–024A), UNLESS SPECIFICALLY NOTED ON THIS DRAWING.

WESTECH

DRAWING NUMBER	PROJECT NUMBER	REV.
E10D	21393A	A



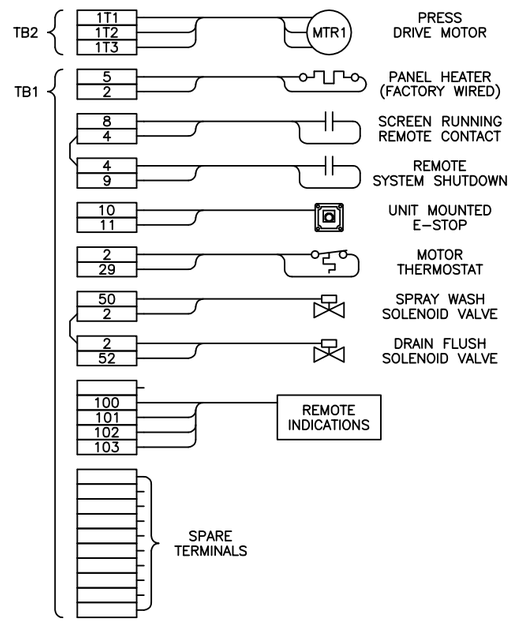
ENCLOSURE LAYOUT
24"Hx24"Wx8"D
NEMA 4 PAINTED STEEL
A



HTR1 MTD.
BEHIND
SUB–PANEL

SUB–PANEL LAYOUT
21"Hx21"W
A

FIELD WIRING DIAGRAM

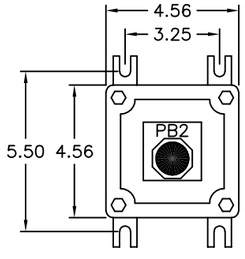


PILOT DEVICE LEGEND PLATES:
LT1 – CONTROL POWER ON
LT2 – PRESS RUNNING
LT3 – PRESS OVERTORQUE
LT4 – GENERAL FAULT
PB1 – EMERGENCY STOP
PB2 – EMERGENCY STOP
PB3 – SYSTEM RESET
SS1 – PRESS HAND–OFF–AUTO
SS2 – PRESS FOR–OFF–REV
SS3 – SPRAY WASH HAND–OFF–AUTO
SS4 – DRAIN FLUSH HAND–OFF–AUTO

NAMEPLATES:
NP1 – 480VAC–3PH–60HZ
NP2 – LCP SW–1/ LCP SW–2
NP3 – PRESS MOTOR CURRENT

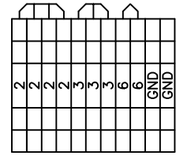
LABEL DESCRIPTION:
LBL1 – WARNING: MULTIPLE SUPPLY SOURCES
OPEN ALL DISCONNECTS BEFORE SERVICING
EQUIPMENT OR OTHER UNIT WIRING.
LBL2 – DANGER HIGH VOLTAGE
ENTRY BY QUALIFIED PERSON ONLY
LBL3 – ELEMECH ELECTRICAL CONTROL SYSTEMS
LBL4 – WESTECH
LBL5 – NOTICE:
– PENETRATIONS TO CONTROL CABINETS MUST BE FITTED WITH TYPE 4 FITTINGS, MYERS BRAND OR EQUAL
– ALL INTERIOR DEVICES MUST BE PROTECTED FROM INSTALLATION DEBRIS

FAILURE TO ADHERE TO INSTRUCTIONS WILL VOID WARRANTY



LCS1
NEMA 4/7/9
LOCAL CONTROL STATION
PUSHBUTTON LOCKABLE
IN DEPRESSED POSITION

DB1 DETAIL



REVISION	BY	CHKD	DATE	LTR
				A
				A
				A
AS BUILT	MSN	RTH	01/11/12	A

CLEANWASH SCREW WASH PRESS CONTROL PANEL

DESCRIPTION								
5HP, 480VAC								
TYPE				SIZE				
				NONE	08/11	MSN	RTH	RTH
DATE	STD. BY	STD.CHKD.	STD.APPVD	SCALE	DATE	PROJ. BY	PROJ.CHKD.	PROJ.APPVD

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WESTECH

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