ENGINEERING SERVICES & SUPPLIES PTY LTD
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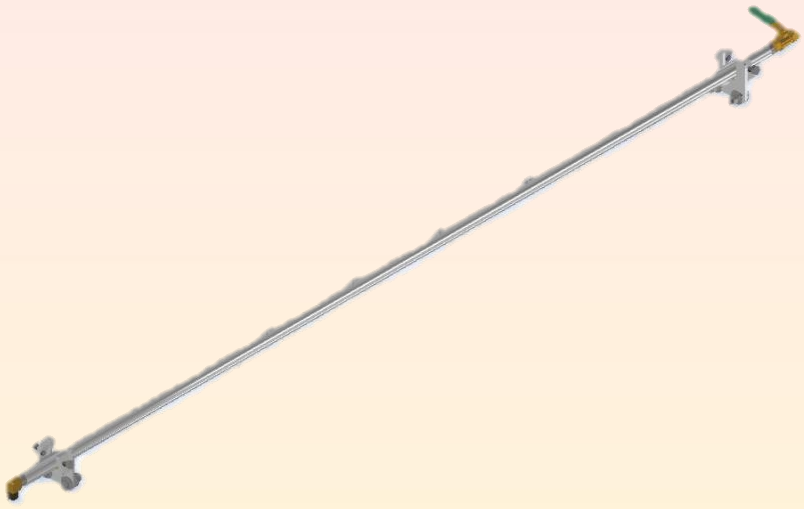
Spraybar DN25
(450 - 2000 Belt Widths)

Installation, Operation & Maintenance Manual



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WARRANTY

ESS WARRANTS the ***Spraybar DN25*** to be free of defects both in materials and workmanship for a period of 12 months from the date of despatch of the product from the ESS factory. The warranty given by ESS in this regard will extend only to replacing or repairing product shown to be defective.

The warranty also is subject to the following restrictions:

a) Installation of the product contrary to the instructions contained in the supplied manual will void such warranty absolutely;

b) The warranty will not extend to any liability for injuries incurred and which result from the use of the product contrary to the instructions in the manual;

c) Save as prescribed by law, ESS will not be liable for any damage sustained by a purchaser or a third party by way of consequential loss arising out of defects in the product.

You are asked to note that ESS offers purchasers a service whereby either:

a) It will install the product and certify the correctness of such installation, or

b) Certify the correctness or otherwise of the installation of the product by third parties.

This certification service is designed to ensure that you obtain the full benefit of the ESS warranty hereby provided. If you would like to take advantage of the installation certification service provided, please contact ESS regarding the service.

Refer to the Final Checklist at the back of this manual.

Visit the ESS website www.esseng.com.au to register your product warranty.

CONTENTS

1.0 SAFETY

The Spraybar 25nb is designed to be quickly and easily serviced by appropriate personnel.

Under no circumstances should servicing or installation of the Spraybar be carried out whilst the belt is in operation.

The conveyor must be shut down and locked out before any person enters or reaches into the conveyor enclosure.

Ensure that only suitably qualified and trained personel install and service this product. Ensure that all site and statutory safety procedures are followed.

All equipment installed on or around a conveyor belt must comply with AS 1755 – 2000 Conveyors – Safety requirements.

Under no circumstances should any personnel attempt installation or service of this equipment whilst the conveyor belt is running.

The conveyor belt drive and any associated equipment must be shut down and locked out according to plant safety procedures before attempting work requiring access to or opening of the chute or conveyor enclosure.

Contact with a moving conveyor belt and its drive components can **result in serious injury or death.**

Hazards that may be present when installing this equipment:

	Hazard		**Hazard**
X	Moving Conveyor - ISOLATE		Other:
	Hot Work		Other:
	Working at Heights		Other:
	Heavy Lift		Other:
	Persons Working Overhead		Other:
	Persons Working Below		Other:
	Electrical & Cabling		Other:
	Pinch Points		Other:
	Trip Hazards		

Once hazards have been identified, the installer should undertake and document a comprehensive Job Hazard Analysis according to site requirements and good safe-working practice.

The installer must identify all hazards and apply appropriate controls before proceeding with the installation of this equipment.

1.1. SAFETY LABELS

Pictograph labels are used to show graphically where potential safety hazards exist around this product. These labels do not represent every possible hazard. They are not intended to be a substitute for safe work practices and good judgment. These labels and *ESS* technical manuals use specific words to identify the severity of the hazard. They are described below. Take time to read and understand the meaning of these words and symbols.

Danger labels call attention to imminently hazardous situations that will result in serious personal injury or death if not avoided. Injury from these hazards is immediate in nature and has a high probability of resulting in a serious or fatal accident if proper precautions are not followed.

Warning labels call attention to potentially hazardous situations that could result in serious personal injury or death if not avoided. Injury from these hazards is usually serious in nature, and a severe or fatal accident can occur if proper precautions are not followed.

Caution labels call attention to potentially hazardous situations that may result in minor or moderate personal injury if not avoided. Injury from these hazards is normally less serious than those from Danger or Warning hazards. However, there is still the potential for an accident resulting in serious injury if proper precautions are not followed.

2.0 INTRODUCTION

The *ESS* Spraybar is primarily intended as a Conveyor Belt washing Spraybar to be used in conjunction with a Conveyor Belt Cleaning system. It is normally positioned between the Primary and Secondary Cleaners, on the lower face of the head pulley.

The *ESS* Spraybar is designed to remove sticky adhering material from the Conveyor Belt surface by use of a high velocity, low volume, knife edge spray.

The *ESS* Spraybar has the added benefits of keeping both the Primary and Secondary cleaners free of material build-up (when positioned appropriately), as well as assisting in dust suppression.

The Spraybar is constructed from DN25 Stainless Steel Pipe, with Wash Jet Spray Nozzles positioned along the centreline of the pipe.

3.0 PREPARATION FOR INSTALLATION

1. **CHECK INSTALLATION DRAWINGS -** Ensure that you have the correct drawings and equipment for your conveyor(s).

2. **PRE-ASSEMBLE THE SPRAYBAR AND MOUNTS** - Do this in your workshop or similar free area, rather than at the Conveyor. This will enable you to:

   a. verify all required equipment is present.

   b. familiarise yourself with the Spraybar assembly.

   c. plan the installation, reducing installation time.

3. **ASSEMBLE THE NECESSARY TOOLS & SAFETY EQUIPMENT REQUIRED FOR THE INSTALLATION**

4.0 INSTALLATION

DANGER

Conveyor must be shut down and locked out before any installation or service work is performed.

WARNING

If installation is to be done in an enclosed area, test atmosphere for gas level or dust content. Follow all welding and safety guidelines.

NOTE 1 For original equipment installation, where cleaner cutouts and brackets have been fabricated into the chute during construction, ignore steps 1 and 2.

NOTE 2 For installation on enclosed head pulley chute work, draw all dimension lines on chute wall. In applications where head pulley is not enclosed, custom designed brackets are necessary to ensure correct cleaner position.

Step 1 Locating the Spraybar Centreline

Using the typical installation drawing supplied in this manual, locate the mainframe's centreline on both sides of the conveyor. Select the desired impact point for the spray and measure radially 325mm in the direction of belt flow. The centreline of the Spraybar cutout is 165mm perpendicular to the belt and 280mm parallel to the belt giving an impact angle of approximately 30°. If impacting on the Head Pully, then these measurements are perpendicular to the tangent of impact (See Figure 1 - Locating the Centreline).

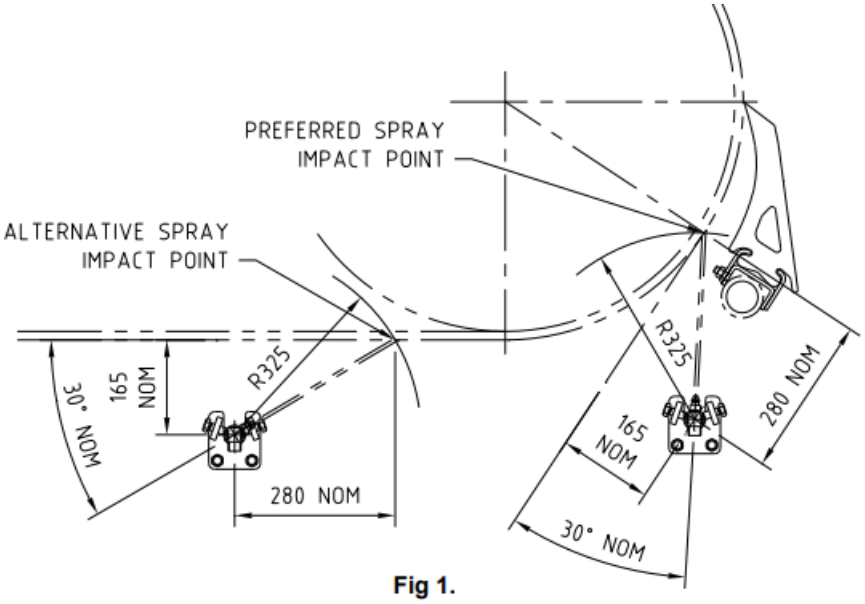


Figure 1 - Locating the Centreline

Verify Mainframe Position before Proceeding

Position the mount assembly over the centreline marks for the Spraybar. Verify that the mounts fit, if mounts interfere with structural members, it may be necessary to locate the Spraybar elsewhere along the belt. Once mounting position is confirmed, proceed.

Step 2 Mount Fastener Holes

At the selected Spraybar mounting position, mark out and cut the Spraybar and mount fastener holes in each side of the chute. Refer to the installation drawing at the back of this manual.

Step 3 Water Inlet

Insert the Spraybar through the cutouts making sure that the water inlet is on the correct side.

Step 4 Positioning Spraybar

Place the mounts over each end and bolt to structure. Set the Spraybar in approximate correct position and lightly tighten up lock screws.

Step 5 Filter Kit

If supplied, position the Filter Kit (Figure 2) in an appropriate position (remember that the flexible hose is 2m long), and secure using appropriate fasteners. The figure below shows an ESS Type 2 Filter Kit. If another type of Filter Assembly is used, ensure that the assembly is mounted correctly in an appropriate position adjacent to the Spraybar. ESS has a range of Filter Kits, including the Type 3, which has pressure control, gauge, filter by-pass and solenoid valve.

Step 6 Solenoid Valve

Connect the site water supply to the inlet side of the Filter Assembly. If no solenoid valve is present, ensure that the isolating valve is closed until final connection is completed. If a solenoid valve is included, connect the solenoid valve so that the valve is opened when the conveyor belt is running, and if possible, when material is present on the belt.

Step 7 Completion

Connect the flexible hose from the Filter Assembly to the Spraybar. The Spraybar is now ready for commissioning and operation.

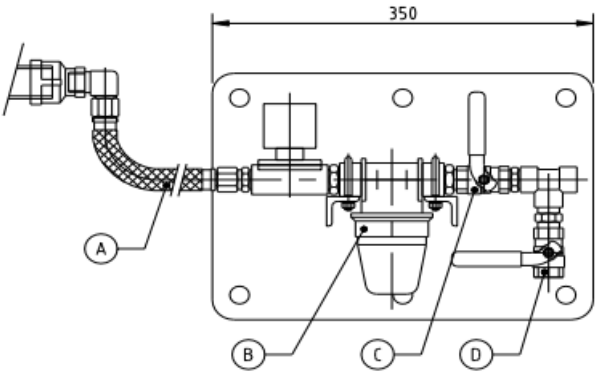


Figure 2 - Complete Spraybar

5.0 COMMISSIONING

Step 1 TURN WATER SUPPLY ON

Double check the items in previous sections - safety - preparation - installation.

Step 2 TURN ON SUPPLY TO THE SPRAYBAR

If a solenoid valve is used, have electrical personnel override the controls to open the valve for testing and commissioning, with the conveyor locked out. Check all joints for leaks. (If there are any leaks, isolate the water supply, dismantle the appropriate joint and reseal with appropriate thread sealing tape or compound).

Step 3 CHECK SPRAY IMPACT POINT

If the spray impact point is not at the intended position, loosen off the lock screws and rotate the Spraybar as required.

Once correct spray impact point is achieved, tighten the lock screws.

Check the water spray pattern adjacent patterns are overlapping. If adjacent spray patterns are colliding, use a spanner to rotate the nozzles slightly to prevent, until the patterns just clear.

Step 4 START THE CONVEYOR

Follow the established safety rules.

Step 5 OBSERVE THE CLEANING ACTION

If installed as part of a total cleaning system with ESS Primary and Secondary Cleaners, then observe the cleaning action of the entire system.

Place some product on the belt and look to see that all cleaners are operating properly.

Step 6 DEMONSTRATE THE SYSTEM TO THE OPERATING SUPERVISORS AND CREW

Call the supervisors responsible for maintenance and operation of the site. Make a short run of the system, putting material on the belt. Show the operator how to adjust and operate the system.

Step 7 SECURE THE SYSTEM FOR PRODUCTION

Follow plant procedure to secure the conveyor for actual production.

6.0 OPERATOR TRAINING

The decision to purchase ***ESS*** cleaning equipment has put within easy reach the reality of a clean plant. The last step is the correct training of personnel to maintain and service the equipment or employ ***ESS*** on a contract basis to maintain the cleaners so that they remain at optimum efficiency.

The benefits of efficient cleaners outweigh the cost of maintaining the cleaners many times.

If you wish to have your cleaning system maintained on a regular contract basis, contact ***ESS***. If not, train your own personnel as follows:

1 Adhere to all local safety rules.

2 Give a “Hands On” instruction with the conveyor system shut down.

3 Give a “Hands On” instruction with the conveyor system running.

4 All service must be recorded and given to a person of responsibility.

5 Encourage the person being trained to look for possible problems developing on the system, eg. Belt tracking excessively, tears or damage to belt, seized idlers, missing bolts, etc.

6 A warning to the maintenance department to rectify small problems can save the company a lot of money in repairs and production costs.

7 Impress how important it is to maintain and service the cleaners correctly.

7.0 ROUTINE MAINTENANCE & SERVICE

Regular inspection and servicing is the key to effective conveyor belt cleaning. It is recommended that the Spraybar be inspected once per week. Actual service intervals will vary considerably from plant to plant.

⚠ CAUTION

DO NOT REACH INSIDE THE CONVEYOR CHUTE UNDER ANY CIRCUMSTANCES WHILST THE CONVEYOR IS RUNNING.

Routine Inspection

Step 1 Inspect the Spraybar

Inspect the condition of the Spraybar. Open the inspection door (if fitted) and observe the condition and action of the cleaning system.

Step 2 Clean Material Build Up

If necessary (and if plant rules allow it), hose any material build-up from the Spraybar –

DO NOT REACH INTO THE CHUTE WHILST CONVEYOR IS RUNNING.

Step 3 Rotate the Spraybar

If necessary, rotate the Spraybar- refer to Section 5 Commissioning.

When Spray Pattern Appears Weak or Incomplete

Step 1 Isolate

Isolate the Spraybar water by closing isolating valve ('C' in Figure 2 - Complete Spraybar)

Step 2 Inspect

Remove filter basket and visually inspect for any material buildup on filter.

By opening valve 'D' you can wash the filter basket clean.

Step 3 Flush

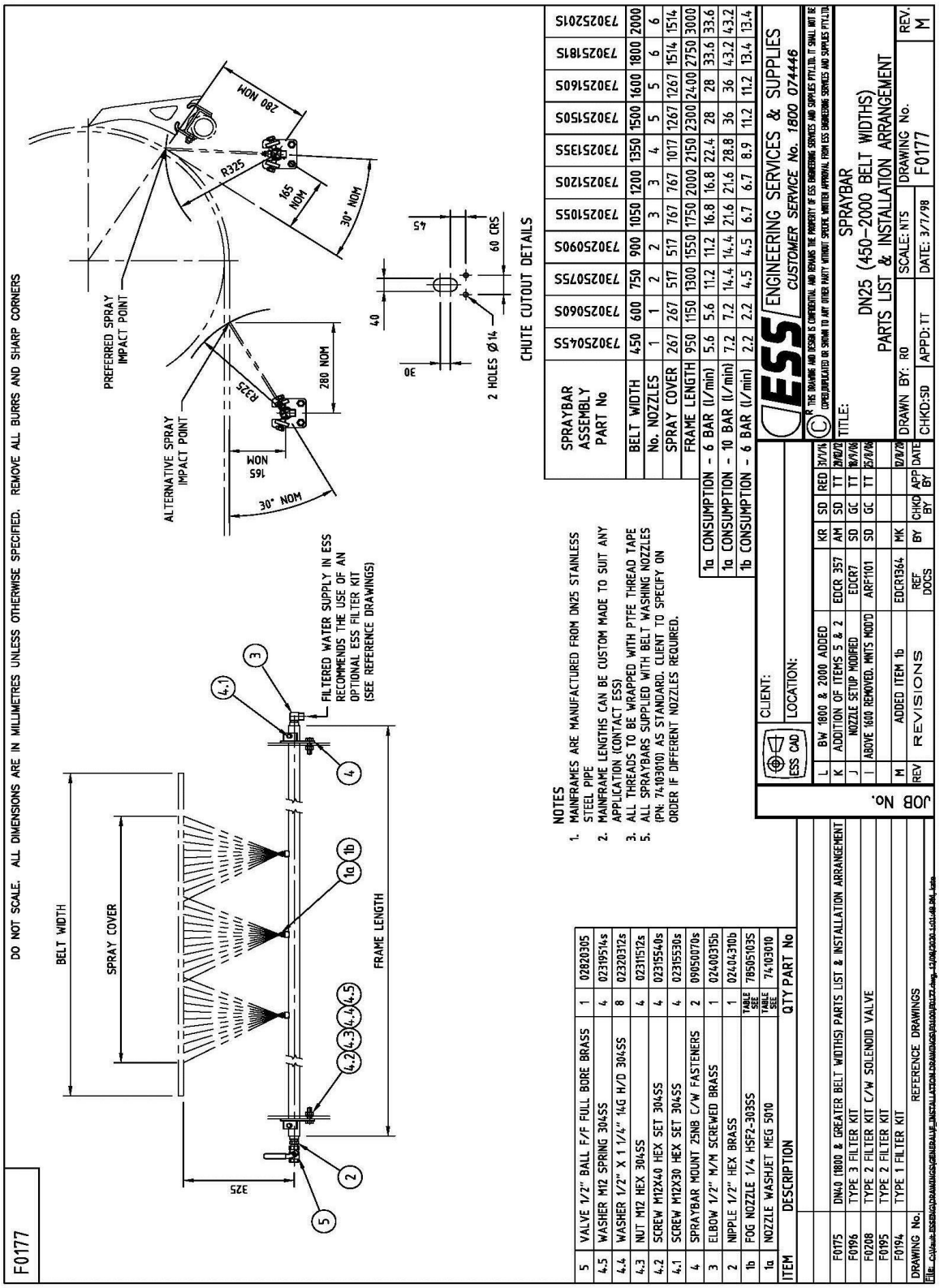
If pressure is still low, then undo plug from far end of the Spraybar and flush the Spraybar out.

Step 4 Clean

If pressure is still low, then remove the entire Spraybar from the structure by loosening lockscrews on mount then remove and clean the nozzles.

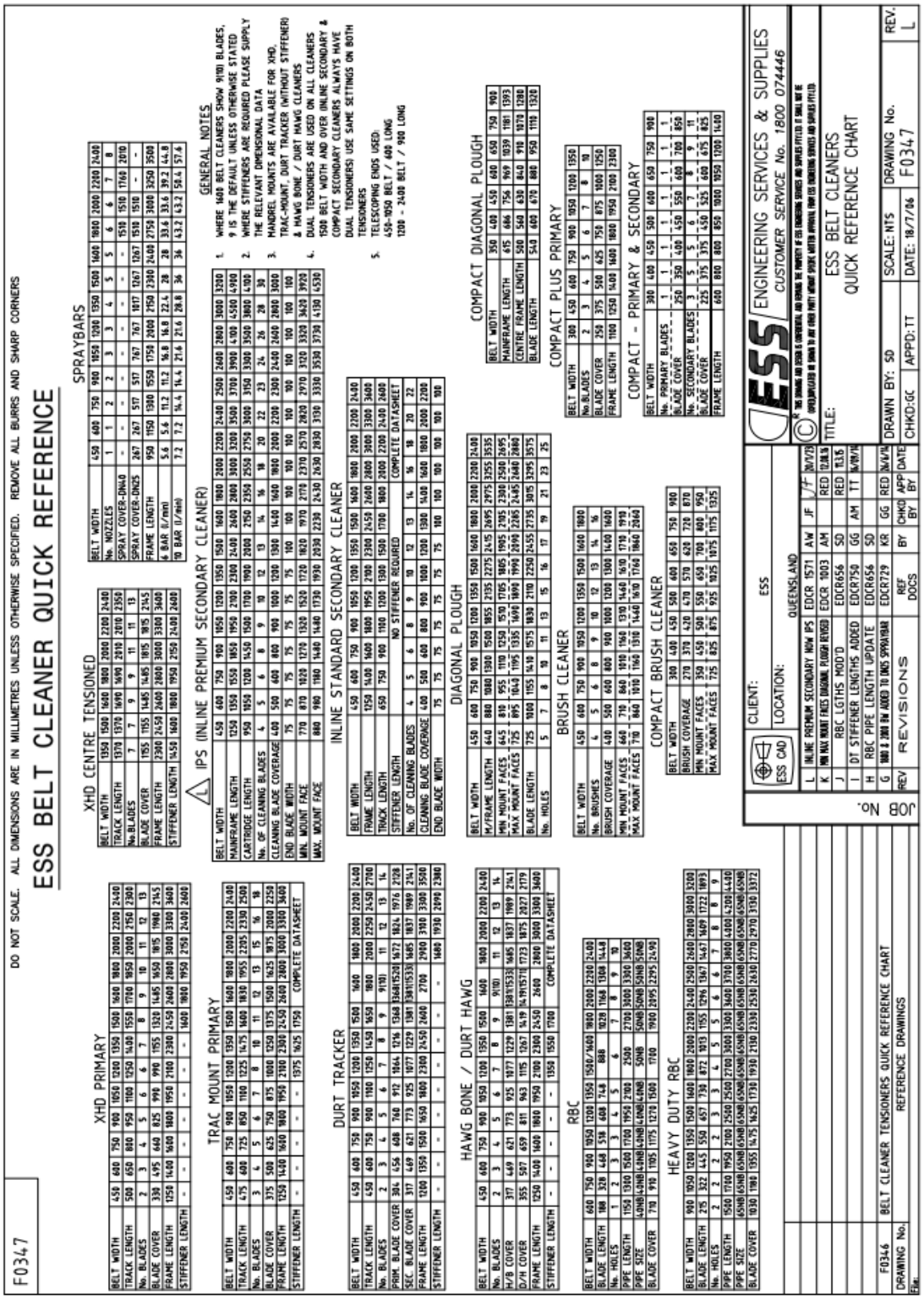
8.0 INSTALLATION ARRANGEMENT DRAWINGS

F0177 DN25 (450 – 2000 BELT WIDTHS)



9.0 ESS BELT CLEANER QUICK REFERENCE

F0347 QUICK REFERENCE CHART



10.0 FINAL CHECKLIST

Site: _____ Number: _____ Date: _____

Site Equipment No./Location: _____ Site Contact: _____

Completed By: _____ **(Circle Yes or No Below)**

1. **Was equipment to ESS Specification?** _____ **Yes/No**

   Drawing No. Ref: _____ **Attached? Yes/No**

   If No, WHY _____

   _____

   Will this affect performance? Yes/No

   If Yes, WHY _____

   _____

2. **Was this a standard ☐ service ☐ inspection ☐ installation? Yes/No**

   If No, WHY _____

   _____

3. **Was work carried out as per procedure and JSA? Yes/No**

   If No, WHY _____

   _____

4. **Is equipment fit for commissioning? Yes/No**

   If No, WHY _____

   _____

5. **Was a final inspection carried out while plant was running? Yes/No**

   If No, WHY _____

   _____

6. **Has anything changed from previous service / inspection / installation? Yes/No**

   If Yes, WHAT _____

   _____

7. **Is equipment performance to Client expectations? Yes/No**

   If No, WHY _____

   _____

ESS Signature: _____ **Client Signature:** _____

11.0 NOTES