Matrx

Scavenger Instruction Manual

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Ref. 10489600 Rev F

SAFETY SUMMARY

CAUTIONS

Federal Law in the U.S.A. and Canada restricts this device to sale by or on the order of a licensed practitioner.

The Vacuum nipple, the vacuum adapter, the vacuum shutoff valve, and the scavenging control valve are not autoclavable (Figure 2).

When autoclaving the Matrx Scavenger, Parker recommends following the specific protocol of the service provider or the sterilizer manufacturer. You can use temperatures consistent with silicone, Ultem (polyetherimide), and polysulfone, that is, temperatures in the range 120°C (248°F) to 134°C (274°F).

Do not autoclave “white” single-use nasal hoods, the vacuum nipple, the vacuum adapter, the vacuum shutoff valve, or the scavenger control valve.

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Notes and Contact Information

Date Purchased

Dealer Name

Dealer Phone Number

Notes:

Introduction

CAUTION

Federal Law in the U.S.A. and Canada restricts this device to sale by or on the order of a licensed practitioner.

Intended Use
The Matrx Scavenger is intended to deliver and remove oxygen and analgesic gas to the patient's upper airway. It is designed for use by medical professionals trained in the administration of conscious sedation.

CE Notice

The CE 0473 symbol on this product indicates compliance with the Medical Device Directive of the European Community. A "Declaration of Conformity" in accordance with the Directive has been made and is on file. European Communities should contact the Authorized Representative listed below regarding any Medical Device Directive (MDD) inquiries. Direct inquiries may be made to the following addresses:

Porter Regulatory Affairs:

Parker Hannifin Corporation
Porter Instrument Division
245 Township Line Road
Hatfield, PA 19440 USA
Tel: 215-723-4000

EU Authorized Representative:

Parker Hannifin Ltd
Instrumentation Products Division
Riverside Road, Pottington Business Park
Barnstaple, EX 31 1NP, England
Phone: +44 (0) 1271-313131
Fax: +44 (0) 1271-373636

Section 1 Description

The Matrx Scavenger is an autoclavable nitrous oxide scavenging system consisting of four parts (see Figure 1):

- a Matrx nasal hood (small, medium, or large)
- a scavenging cone system
- a vacuum tubing assembly
- a fresh gas tubing assembly

The design and the small number of parts precludes missassembly during cleaning and mask changes.

The vacuum ports and a one-way exhalation valve make up the scavenging cone system. The vacuum tubing assembly consists of an integral Y-piece and vacuum hose. The fresh gas tubing comprises an integral Y-piece, a fresh gas tube, a slide, and a corrugated, 22 mm fresh gas connector. *All components shown in Figure 1 (except single-use nasal hoods) are autoclavable.*

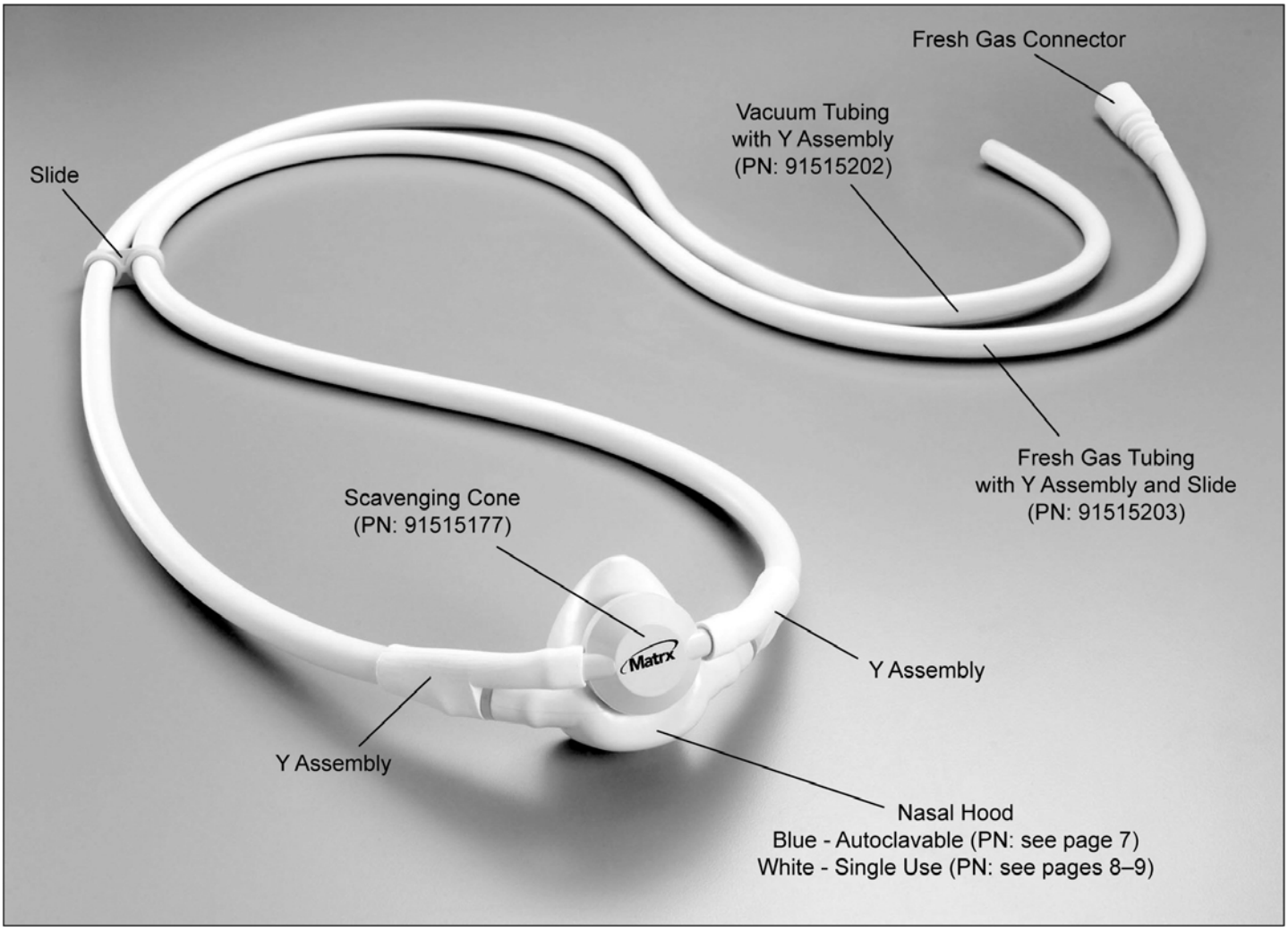

Figure 1. Matrx Scavenger

Section 2 Installation

2.1 Fresh Gas Tubing

Connect the Matrx Scavenger fresh gas tubing to the fresh gas outlet of the analgesia flowmeter. The 22 mm fresh gas connector of the Matrx Scavenger connects directly to a Matrx analgesia flowmeter or to one from a different manufacturer.

2.2 Vacuum Tubing

Vacuum tubing lacks corrugations on the hose. A white, hard, threaded fitting, called the vacuum nipple, attaches to the tubing's termination. The vacuum nipple connects to the vacuum shutoff valve or to the optional scavenging control valve. The shutoff valve or the scavenging control valve attaches to the vacuum adapter. See Figure 2.

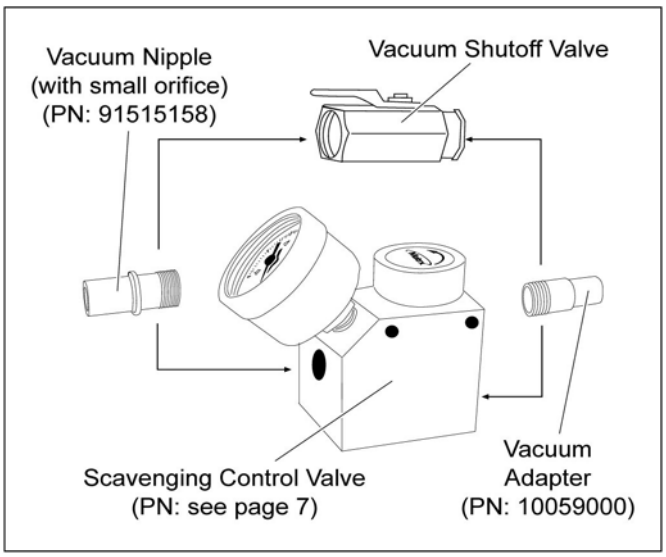

Figure 2. Shutoff Connection Options

CAUTION

The vacuum nipple, the vacuum adapter, the vacuum shutoff valve, and the scavenging control valve are not autoclavable (Figure 2).

The four methods to connect the vacuum adapter to a vacuum source are:

1. **Direct connection to a high volume evacuation (HVE) line**. The leading diameter of the vacuum adapter is sized to fit the HVE line inlet. Remove the HVE tip and insert the vacuum adapter.

2. **Vacuum source in a junction box**. Manufacturers provide junction boxes that have at least two vacuum terminals. You must use dealer-supplied hose and/or adapters to make this connection.

3. **Tee into an HVE line**. The vacuum adapter diameter is stepped to accept either 1/2" or 7/16" inside diameter hose. The properly sized tee (dealer supplied) can be inserted into the HVE line ahead of the tip. Using the appropriately sized tubing supplied by the dealer, connect the scavenger to the free leg of the tee.

4. **Direct connection to an HVE piping system (see Figure 3)**

   a. **PVC Plumbing.** The scavenger vacuum shutoff valve has 1/4 NPT female pipe threads. From a plumbing supply house, purchase the proper saddle (to fit the PVC pipe), bushing, and nipple to reduce the 1/4 NPT. Following the plumbing instructions, install the saddle and the bushings. Remove the vacuum adapter from the scavenger's vacuum shutoff valve and thread the purchased nipple into the vacuum shutoff valve. Connect the nipple to the bushing.

   b. **Hard copper plumbing.** From a plumbing supply house, obtain a copper flush bushing with 1/4 NPT female pipe threads. Measure the inside diameter to determine the proper drill size. At the position where you plan to place the bushing, center punch the main copper pipe. Drill an 1/8" diameter hole *through one wall only.* Use successively larger drills until the hole's diameter matches the outside diameter of the flush bushing. Insert the bushing, with the nipple in place, and attach the scavenging shutoff valve to the nipple.

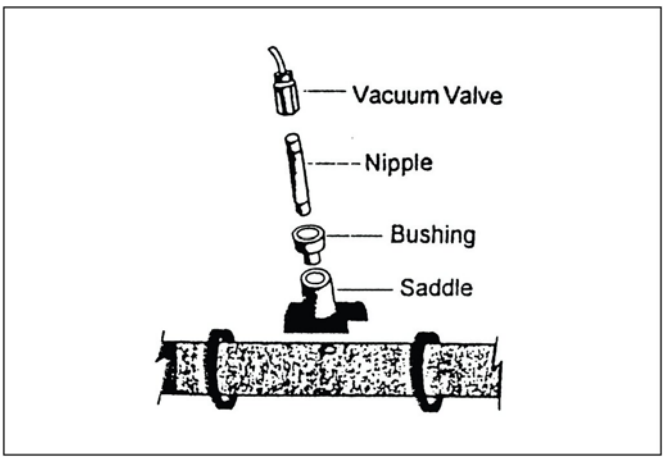

Figure 3. Direct connection to HVE Piping System

2.3 Matrx MDM® and RA® Analgesia Heads

If you purchase the scavenger with the shutoff valve, the supplied clip is used to support the valve at the back of the MDM® or the RA® analgesia head. See Figure 4.

1. From the rear of the head, remove the lower left hand cover retaining screw.
2. Insert the screw through the mounting hole in the retaining clip.
3. Install the screw, securing the retaining clip to the machine head.
4. Snap the scavenger vacuum shutoff valve into the retaining clip.
5. Using dealer-supplied vacuum hoses, make the vacuum connection as previously described.

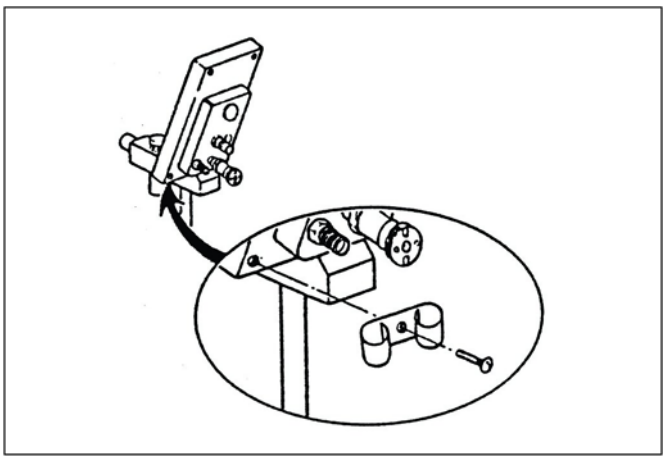

Figure 4. Installing the Retaining Clip

Section 3 Operation

1. Check the system before operation. Ensure that:
   - The fresh gas tubing is connected to the analgesia flowmeter.
   - The vacuum system is connected to the vacuum shutoff valve or the scavenger control valve.
   - The vacuum shutoff valve or the scavenger control valve is connected to the vacuum system.
   - The vacuum system is operating.
2. Open the vacuum shutoff valve completely.

   Or, open the scavenger control valve, adjusting the vacuum within the green band. Note that the line between red and green is in the American Dental Association's (ADA) recommended 45 LPM scavenging flow. Any adjustment above this level improves the scavenging efficiency.
3. Operate the analgesia machine, according to the manufacturer's instructions.
4. At the completion of the procedure, shut off the vacuum shutoff valve or the scavenger control valve.

Section 4 Changing the Hood

1. Hold the nasal hood in one hand.

2. With your other hand, gently pull the scavenging cone from the hood.

3. Disconnect the long sections of the gas Y and the vacuum Y from the hard plastic cone.

4. Pinching the gas Y just behind the hose connector, work the hood free from the gas Y. Repeat for the vacuum Y. These procedures leave the hose connectors connected to the Ys. See Figure 5.

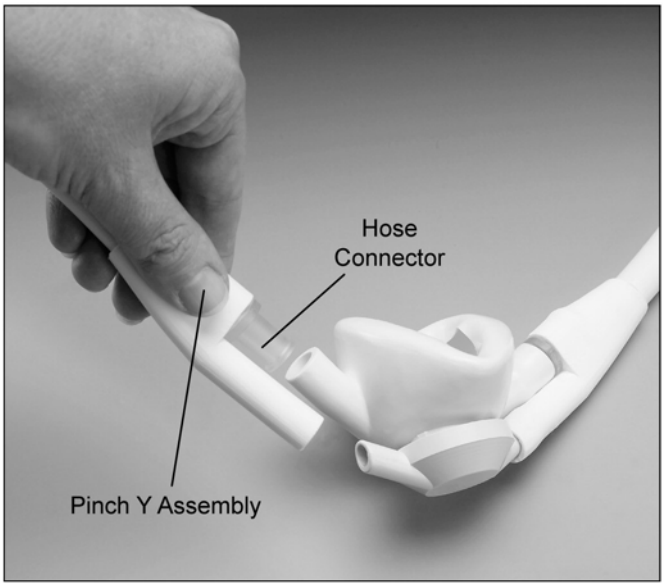

Figure 5. Removing the Y from the Hood

5. Remove the hood from the scavenging cone.

6. Turn the *new* hood upside down. Place your thumbs inside the hood.

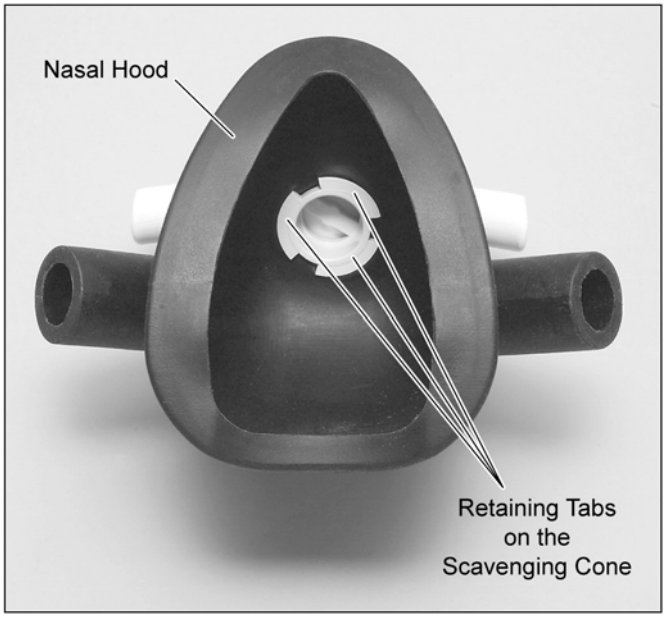

Figure 6. Correctly Seating the Cone in the Hood

7. Gently stretch the hole in the hood over the retaining tabs on the scavenging cone. When the cone is seated in the nasal hood properly, three segments of the cone base are visible inside the nasal hood. See Figure 6.

8. Note the natural bend of the long tubing sections of the gas Y and the vacuum Y. Use this bend as a guide to determine a natural fit to the left and the right sides of the hood and cone assembly.

9. Pinching the hose connector in the gas Y, insert it into the hood fully. Repeat for the vacuum Y.

10. Connect the long sections of the Y pieces to the two ports on the scavenging cone.

Section 5 Cleaning Instructions

You can autoclave all Matrx Scavenger components, except the components of the vacuum shutoff valve and the scavenging control valve. To ensure proper cleaning, follow the directions below.

CAUTION

When autoclaving the Matrx Scavenger components, Parker recommends following the specific protocol of the service provider of the sterilizer manufacturer. You can use temperatures consistent with silicone, Ultem (polyetherimide), and polysulfone, that is, in the temperature range from 120°C (248°F) to 134°C (274°F).

1. Remove the vacuum Y from the hood and cone. Remove the tubing from the vacuum nipple.

NOTE

Do not unthread the vacuum nipple from the shutoff valve or the scavenging control valve.

2. Remove the fresh gas Y from the hood. Remove the tubing from the fresh gas outlet of the gas mixing apparatus.

3. Wash each tube with a mild alkali detergent.

4. Wash the scavenging cone system with a mild alkali detergent. Run a soft bristle brush around the inside of the cone to remove any debris. If necessary, you can detach the cone from the cage by bending the pinch bar back and turning clockwise (see Figure 7).

CAUTION

Do not autoclave "white" single-use nasal hoods, the vacuum nipple, the vacuum adapter, the vacuum shutoff valve, or the scavenger control valve.

5. Autoclave all parts not included in the CAUTION above. Use autoclavable protocol.

Section 6 Assembly after Cleaning

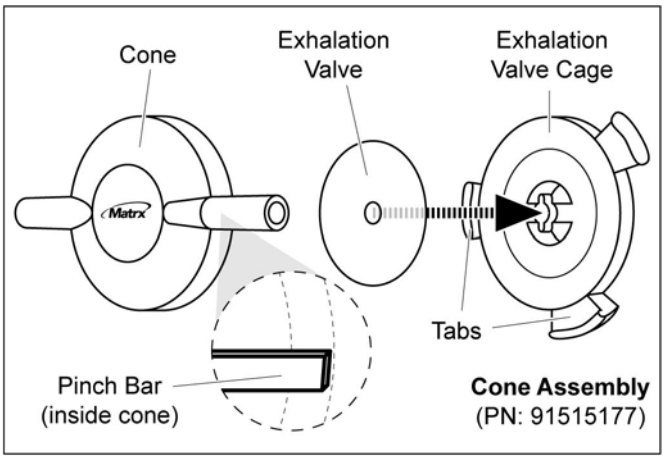

Figure 7. Assembling the Cone

1. Attach the exhalation valve to the exhalation valve cage (see Figure 7).

2. With the exhalation valve facing the cone, insert the assembled exhalation valve and exhalation valve cage into the cone.

3. Turn the cage counterclockwise.

4. Continue turning until the tabs engage and the pinch bar snaps closed. When completely engaged, the cone and the cage cannot disengage.

5. Turn the hood upside down. Place your thumbs inside the hood.

6. Gently stretch the hole in the hood over the retaining tabs on the scavenging cone. When the cone is seated in the nasal hood properly, three segments of the cone base are visible inside the nasal hood. (see Figure 6).

7. Note the natural bend of the long tubing sections of the gas Y and the vacuum Y. Use this bend as a guide to determine a natural fit to the left and right sides of the hood and cone assembly.

8. Pinching the hose connector in the gas Y (Figure 5), insert it into the hood fully. Repeat for the vacuum Y.

9. Connect the ling section of the Y pieces to the two ports on the scavenging cone.

10. Attach the free end of the fresh gas tubing to the analgesia head.

11. Attach the free end of the vacuum tubing to the vacuum nipple on the vacuum shutoff valve or on the scavenging control valve.

Section 7 Replacement Parts

You can obtain the following replacement parts from Parker.

Matrx Part No.	Description	Size
91515201	Hose connectors (package of 2)	
91515202	Vacuum tubing and Y assembly	
91515203	Fresh gas tubing and Y assembly (including slide)	
91515177	Replacement cone assembly	
10489600	Instruction manual	
91515199	Extension kit	
91515158	Vacuum nipple (with small orifice)	
91515159	Shutoff valve	
91515096	Reusable hood	Large
91515095	Reusable hood	Medium
91515094	Reusable hood	Small
	See pages 8 & 9 for single-use hoods	

Scavenging Control Valve (above)

91515083	For MDM® or RA®
91525109	For Digital MDM®
91515084	For Centurion Mixer
91515085	Adapter with Ohio Quick Connect
91515086	For cabinet mounting

DynoMite Scented Nasal Hoods

DynoMite Single-use Nasal Hoods (package of 12)

Matrx Part No.	Description	Size
91316496	Bubble gum	Small
91316503	Bubble gum	Medium
91316510	Bubble gum	Large
91316497	Strawberry	Small
91316504	Strawberry	Medium
91316511	Strawberry	Large
91316498	Orange	Small
91316505	Orange	Medium
91316512	Orange	Large
91316499	Vanilla	Small
91316506	Vanilla	Medium
91316513	Vanilla	Large
91316500	Plain	Small
91316507	Plain	Medium
91316514	Plain	Large
91316501	Assorted scents	Small
91316508	Assorted scents	Medium
91316515	Assorted scents	Large
91316516	Assorted scents	Various

DynoMite Single-use Nasal Hoods (package of 24)

Matrx Part No.	Description	Size
91316461	Bubble gum	Small
91316468	Bubble gum	Medium
91316475	Bubble gum	Large
91316462	Strawberry	Small
91316469	Strawberry	Medium
91316476	Strawberry	Large
91316463	Orange	Small
91316470	Orange	Medium
91316477	Orange	Large
91316464	Vanilla	Small
91316471	Vanilla	Medium
91316478	Vanilla	Large
91316465	Plain	Small
91316472	Plain	Medium
91316479	Plain	Large
91316466	Assorted scents	Small
91316473	Assorted scents	Medium
91316480	Assorted scents	Large
91316481	Assorted scents	Various

DynoMite Single-use
Nasal Hoods (24 in a decorative canister, right)

Matrx Part No.	Description	Size
91316482	Bubble gum	Small
91316519	Bubble gum	Medium
91316489	Bubble gum	Large
91316483	Strawberry	Small
91316520	Strawberry	Medium
91316490	Strawberry	Large
91316484	Orange	Small
91316521	Orange	Medium
91316491	Orange	Large
91316485	Vanilla	Small
91316522	Vanilla	Medium
91316492	Vanilla	Large
91316486	Plain	Small
91316523	Plain	Medium
91316493	Plain	Large
91316487	Assorted scents	Small
91316524	Assorted scents	Medium
91316494	Assorted scents	Large
91316495	Assorted scents	Various

Matrx by Parker

REVISION HISTORY

Rev.	Date	Ecn #	Description of Changes	Dr	Ch	Appr
D	4/30/09	09-0090	Updated to have Parker information. Created in word document from PDF.	MAM	AEM	SDL
E	3/11/10	10-0073	Changed Authorized Rep. For Ce Marked Products From Heatherside-April Fay To Parker Hannifin Ltd Instrumentation Products Division	ANB	RAR	ALE
F	8/19/10	10-0235	Updated CE Mark	ANB		