

# AIR CHAMP® PRODUCTS

User Manual



## Single Flex and Double Flex Couplings

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

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# DANGER

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel ONLY.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

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ISO 9001 Certified

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## INTRODUCTION

Nexen's Single and Double Flex, universally designed couplings combine with Nexen's Open or Enclosed 4H and 5H Series Clutches and Torque Limiters.

The Open 5H Series Tooth Clutches have four mounting holes; the Enclosed 4H and 5H Series and Torque Limiters have six mounting holes.

Use the four standard cap screws when combining the Coupling with the 4H and 5H Series Tooth Clutch. Use the six stainless steel cap screws when combining the Coupling with the Enclosed Nickel-plated 4H and 5H Series Tooth Clutch or Torque Limiters.

## INSTALLATION

### SINGLE FLEX COUPLING

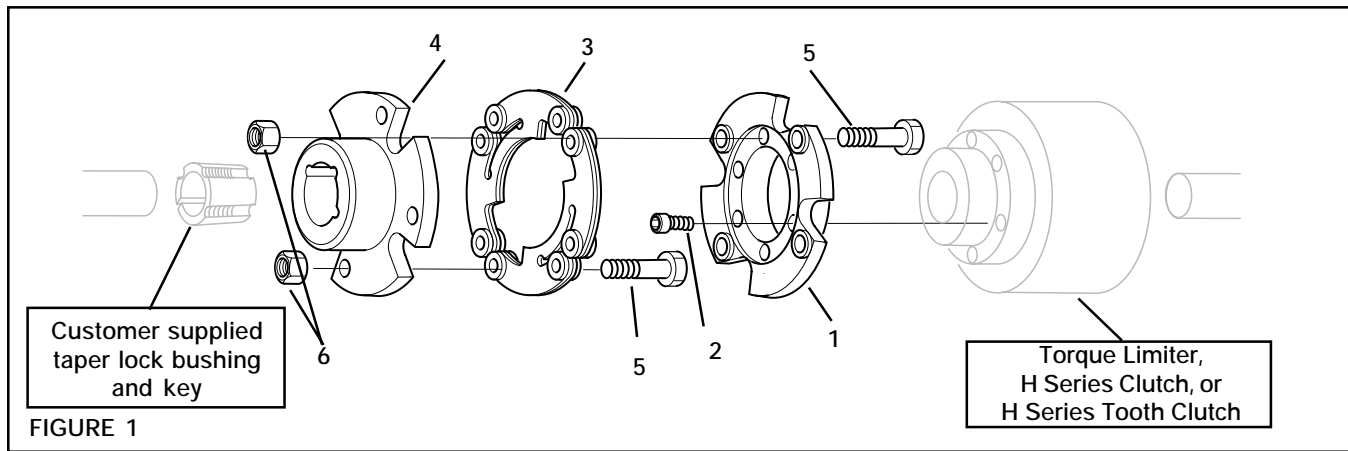


TABLE 1

SINGLE FLEX COUPLING ADAPTER ASSEMBLY							
MODEL	Coupling Adapter Assembly Adaptor Assembly	Misalignment Capacity			S.H.C.S. Clamping Torque (Item 2) (Qty 4) Open Units Only	S.H.C.S. Clamping Torque (Item 2) (Qty 6) Enclosed Units Only	Hex. Nut Clamping Torque (Item 6) Clamping Torque
		ANG.	AXIAL	PARA			
4H30, 5H30, TL20	909980	1.5 Deg.	.065	.011	144 In. Lbs.	104 In. Lbs.	120 In. Lbs.
4H35, 5H35, TL30	910080	1.5 Deg.	.070	.012	144 In. Lbs.	104 In. Lbs.	216 In. Lbs.
4H40, 5H40	910180	1.5 Deg.	.080	.013	144 In. Lbs.	104 In. Lbs.	216 In. Lbs.
4H45, 5H45, TL40	910280	1.5 Deg.	.090	.014	144 In. Lbs.	185 In. Lbs.	336 In. Lbs.
4H50, 5H50, TL50	910380	1.5 Deg.	.105	.017	300 In. Lbs.	407 In. Lbs.	336 In. Lbs.
4H60, 5H60, TL60	910480	1.5 Deg.	.120	.019	300 In. Lbs.	407 In. Lbs.	492 In. Lbs.
4H70, 5H70, TL70	910580	1.5 Deg.	.135	.022	1320 In. Lbs.	870 In. Lbs.	960 In. Lbs.
5H80, TL80	911780	1.5 Deg.	.155	.026	1320 In. Lbs.	870 In. Lbs.	1644 In. Lbs.

If parallel, angular, and axial misalignment are all required, make sure the combined percentage of each does not exceed 100%.

EXAMPLE: If 100% of the parallel misalignment is required, no angular or axial misalignment is allowed. If 50% of the parallel misalignment is required, only 0.75 degrees angular misalignment or 50% of the axial rating will be available.

1. Insert the taper lock bushing into the Coupling Hub (Item 4) (See Figure 1).
2. Slide the Coupling Hub (Item 4) with the customer supplied taper lock bushing and key onto one shaft, then install the set screws provided with the taper lock bushing (See Figure 1).

**NOTE**  
Make sure there are no burrs on the shafts or keys.

**NOTE**  
Do not tighten the set screws provided with the taper lock bushing at this time.

3. Using the Socket Head Cap Screws (Item 2), attach the Coupling Adapter (Item 1) to the Clutch or Torque Limiter (See Figure 1).
4. Tighten the Socket Head Cap Screws (Item 2) to the recommended torque (See Table 1).
5. Slide the Coupling Adapter with the Clutch or Torque Limiter onto the other shaft (See Figure 1).
6. Tighten the taper lock bushing set screws to the recommended torque.
7. Adjust the hub separation to within the limits for parallel and angular misalignment (See Table 1).

**NOTE**  
For best results, Nexen recommends the use of a dial indicator when checking the limits for parallel and angular misalignment. To ensure accurate readings, always rotate the hub on which the dial indicator probe is mounted.

**CAUTION**  
Coupling and shaft alignment should be checked periodically, due to equipment shifting, etc. Alignment should be rechecked after the first forty hours of operation.

8. Secure the Clutch or Torque Limiter with the Coupling Adapter to the shaft according to the instructions provided with the Clutch or Torque Limiter.
9. Insert the Disc Pack (Item 3) between the Coupling Adapter (Item 1) and the Coupling Hub (Item 4) (See Figure 1).
10. Using Hex. Head Cap Screws (Item 5) and Hex. Nuts (Item 6), secure the Disc Pack (Item 3) to the Coupling Adapter (Item 1) and the Coupling Hub (Item 4).

**NOTE**  
To prevent galling or seizing, check the Hex. Nuts (Item 6) for lubricant. If lubricant is not found on Hex. Nut, apply Molycote or equivalent lubricant to the Hex. Head Cap Screws (Item 5) to ensure proper clamping torque.

**NOTE**  
Do not rotate Hex. Head Cap Screws (Item 5) while applying clamping torque.

11. Alternately and evenly tighten the Hex. Nuts (Item 6) to one-half of the recommended torque (See Table 1).
12. Alternately and evenly tighten the Hex. Nuts (Item 6) to the recommended torque (See Table 1).

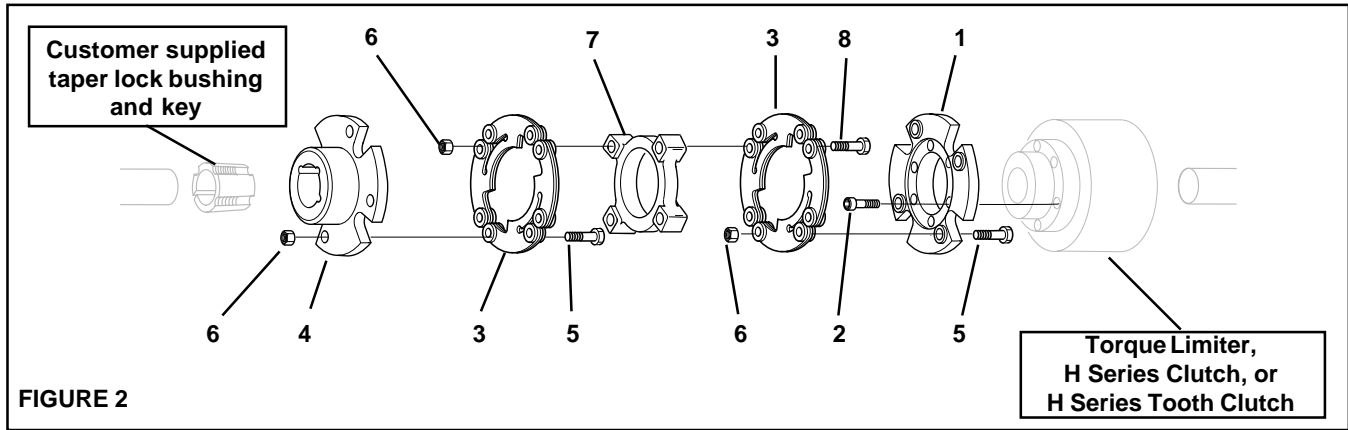


FIGURE 2

TABLE 2

DOUBLE FLEX COUPLING ADAPTER ASSEMBLY							
MODEL	Coupling Adapter Assembly Adaptor Assembly	Misalignment Capacity			S.H.C.S. Clamping Torque (Item 2) (Qty 4) Open Units Only	S.H.C.S. Clamping Torque (Item 2) (Qty 6) Enclosed Units Only	Hex. Nut Clamping Torque (Item 6) Clamping Torque
		ANG.	AXIAL	PARA			
4H30, 5H30, TL20	909981	3 Deg.	0.13	0.063	144 In. Lbs.	104 In. Lbs.	120 In. Lbs.
4H35, 5H35, TL30	910081	3 Deg.	0.14	0.078	144 In. Lbs.	104 In. Lbs.	216 In. Lbs.
4H40, 5H40	910181	3 Deg.	0.16	0.085	144 In. Lbs.	104 In. Lbs.	216 In. Lbs.
4H45, 5H45, TL40	910281	3 Deg.	0.18	0.091	144 In. Lbs.	185 In. Lbs.	336 In. Lbs.
4H50, 5H50, TL50	910381	3 Deg.	0.21	0.104	300 In. Lbs.	407 In. Lbs.	336 In. Lbs.
4H60, 5H60, TL60	910481	3 Deg.	0.24	0.117	300 In. Lbs.	407 In. Lbs.	492 In. Lbs.
4H70, 5H70, TL70	910581	3 Deg.	0.27	0.137	1320 In. Lbs.	870 In. Lbs.	960 In. Lbs.
5H80, TL80	911781	3 Deg.	0.31	0.170	1320 In. Lbs.	870 In. Lbs.	1644 In. Lbs.

If parallel, angular, and axial misalignment are all required, make sure the combined percentage of each does not exceed 100%.

EXAMPLE: If 100% of the parallel misalignment is required, no angular or axial misalignment is allowed. If 50% of the parallel misalignment is required, only 1.5 degrees angular misalignment or 50% of the axial rating will be available.

1. Insert the taper lock bushing into the Coupling Hub (Item 4) (See Figure 2).
2. Slide the Coupling Hub (Item 4) with the customer supplied taper lock bushing and key onto one shaft, then install the set screws provided with the taper lock bushing (See Figure 2).
3. Using the Socket Head Cap Screws (Item 2), attach the Coupling Adapter (Item 1) to the Clutch or Torque Limiter (See Figure 2).
4. Tighten the Socket Head Cap Screws (Item 2) to the recommended torque (See Table 2).
5. Slide the Coupling Adapter with the Clutch or Torque Limiter onto the other shaft (See Figure 2).
6. Tighten the taper lock bushing set screws to the recommended torque.
7. Adjust the hub separation to within the limits for parallel and angular misalignment (See Table 2).

**NOTE**  
 Make sure there are no burrs on the shafts or keys.

**NOTE**  
 Do not tighten the set screws provided with the taper lock bushing at this time.

**NOTE**  
 For best results, Nexen recommends the use of a dial indicator when checking the limits for parallel and angular misalignment. To ensure accurate readings, always rotate the hub on which the dial indicator probe is mounted.

**CAUTION**  
 Coupling and shaft alignment should be checked periodically, due to equipment shifting, etc. Alignment should be rechecked after the first forty hours of operation.

3. Using the Socket Head Cap Screws (Item 2), attach the Coupling Adapter (Item 1) to the Clutch or Torque Limiter (See Figure 2).
4. Tighten the Socket Head Cap Screws (Item 2) to the recommended torque (See Table 2).
5. Slide the Coupling Adapter with the Clutch or Torque Limiter onto the other shaft (See Figure 2).
6. Tighten the taper lock bushing set screws to the recommended torque.
7. Adjust the hub separation to within the limits for parallel and angular misalignment (See Table 2).
8. Secure the Clutch or Torque Limiter with the Coupling Adapter to the shaft according to the instructions provided with the Clutch or Torque Limiter.

9. Using Hex. Head Cap Screws (Item 8) and Hex. Nuts (Item 6), secure the Disc Packs (Item 3) to the Flange (Item 7) (See Figure 2).

10. Using Hex. Head Cap Screws (Item 5) and Hex. Nuts (Item 6), secure the Disc Pack and Flange Assembly to the Coupling Adapter (Item 1) and Coupling Hub (Item 4) (See Figure 2).

NOTE

To prevent galling or seizing, check the Hex. Nuts (Item 6) for lubricant. If lubricant is not found on Hex. Nut, apply Molycote or equivalent lubricant to the Hex. Head Cap Screws (Item 8) to ensure proper clamping torque.

NOTE

To prevent galling or seizing, check the Hex. Nuts (Item 6) for lubricant. If lubricant is not found on Hex. Nut, apply Molycote or equivalent lubricant to the Hex. Head Cap Screws (Item 5) to ensure proper clamping torque.

NOTE

Do not rotate Hex. Head Cap Screws (Item 8) while applying clamping torque.

NOTE

Do not rotate Hex. Head Cap Screws (Item 5) while applying clamping torque.

10. Alternately and evenly tighten the Hex. Nuts (Item 6) to one-half of the recommended torque (See Table 2).
11. Alternately and evenly tighten the Hex. Nuts (Item 6) to the recommended torque (See Table 2).
12. Insert the Disc Pack and Flange Assembly between the Coupling Adapter (Item 1) and the Coupling Hub (Item 4) (See Figure 2).

14. Alternately and evenly tighten the Hex. Nuts (Item 6) to one-half of the recommended torque (See Table 2).
15. Alternately and evenly tighten the Hex. Nuts (Item 6) to the recommended torque (See Table 2).

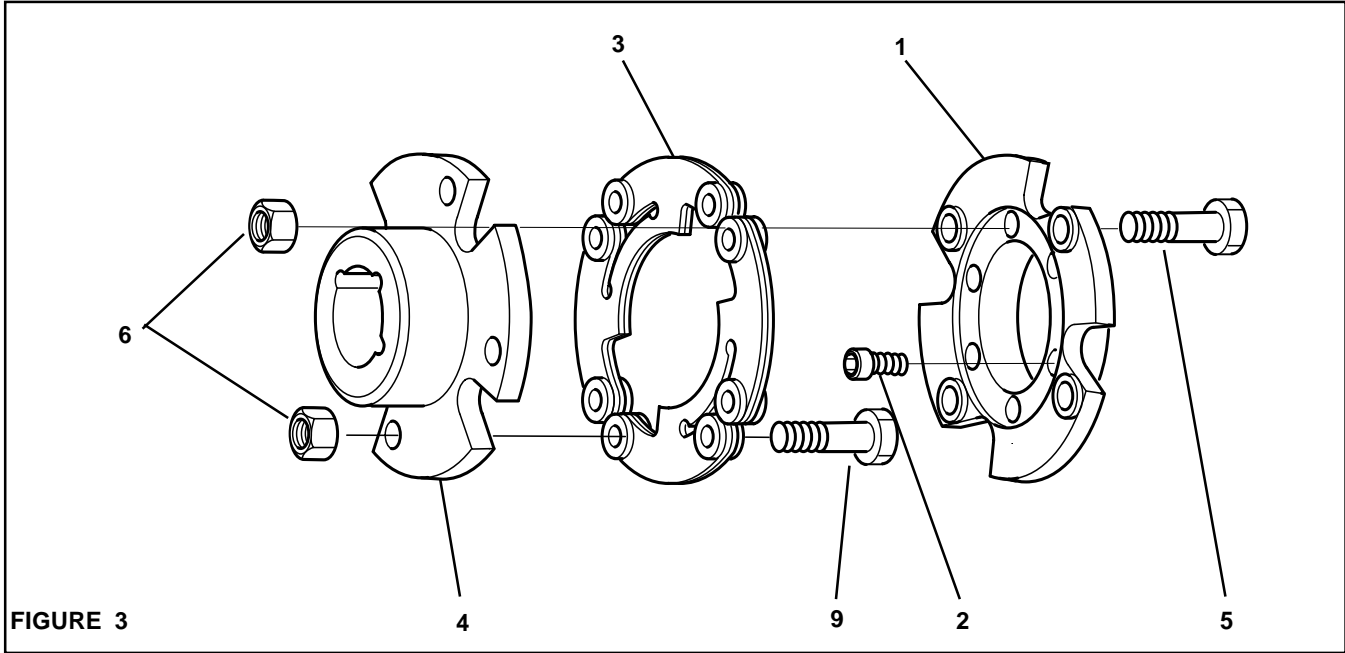
## REPLACEMENT PARTS

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

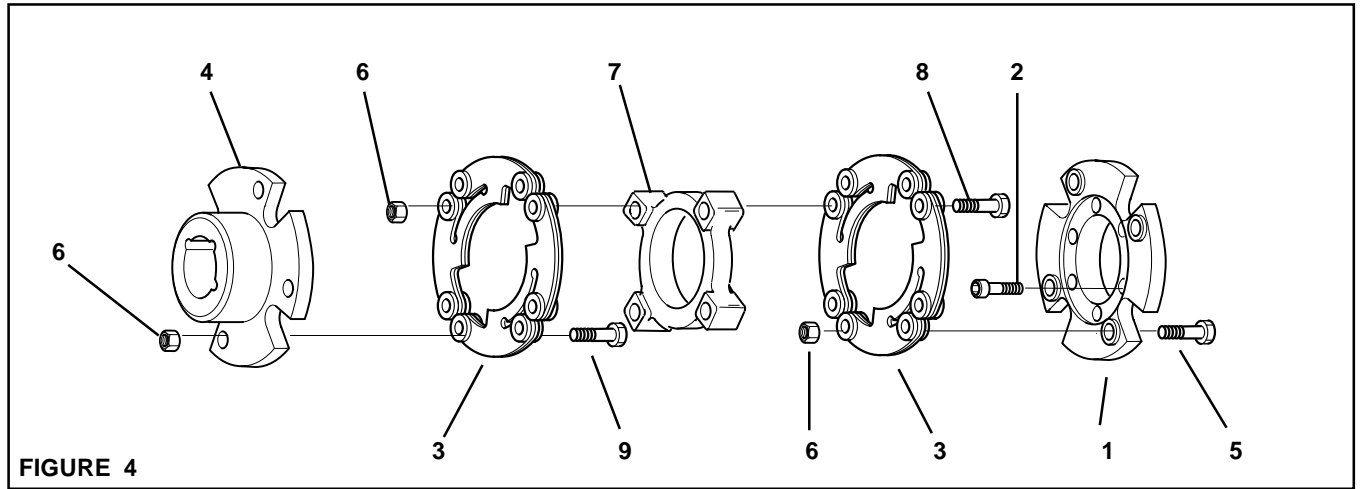
**PARTS LIST**

**SINGLE FLEX COUPLING**



SINGLE FLEX COUPLING									
ITEM	DESCRIPTION	QUANTITY							
		909980	910080	910180	910280	910380	910480	910580	911780
1	Coupling Adapter	1	1	1	1	1	1	1	1
2	Socket Head Cap Screw (Open Units)	4	4	4	4	4	4	4	4
2	Socket Head Cap Screw (Stainless, Enclosed Units)	6	6	6	6	6	6	6	6
3	Disc Pack (Flexible)	1	1	1	1	1	1	1	1
4	Coupling Hub	1	1	1	1	1	1	1	1
5	Hex. Head Cap Screw	8	8	8	8	8	8	4	4
6	Hex. Nut (Torque)	8	8	8	8	8	8	8	8
9	Hex Head Cap Screw	-	-	-	-	-	-	4	4





SINGLE FLEX COUPLING									
ITEM	DESCRIPTION	QUANTITY							
		909981	910081	910181	910281	910381	910481	910581	911781
1	Coupling Adapter	1	1	1	1	1	1	1	1
2	Socket Head Cap Screw (Open Units)	4	4	4	4	4	4	4	4
2	Socket Head Cap Screw (Stainless, Enclosed Units)	6	6	6	6	6	6	6	6
3	Disc Pack (Flexible)	2	2	2	2	2	2	2	2
4	Coupling Hub	1	1	1	1	1	1	1	1
5	Hex. Head Cap Screw	8	8	8	8	8	8	4	4
6	Hex. Nut (Torque)	12	12	12	12	12	12	12	12
7	Flange Double Flex	1	1	1	1	1	1	1	1
8	Hex Head Cap Screw	4	4	4	4	4	4	4	4
9	Hex Head Cap Screw	-	-	-	-	-	-	4	4



## WARRANTY

### Warranties

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

### Exclusive Remedy

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

### Limitation of Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay images, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

### Limitation of Damages

In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

### Warranty Claim Procedures

To make a claim under this warranty, the claimant must give written notice of the alleged defect to whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

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