



FAST TRACK MOTORIZED IMPELLERS  
AC AND DC MODELS

# INSTRUCTION MANUAL

## TABLE OF CONTENTS

RECEIVING THE MOTORIZED IMPELLER .....	2
HANDLING AND TESTING THE MOTORIZED IMPELLER .....	2
AC Models .....	3
Design Data, AC Models .....	3
Capacitors, AC Models.....	3
Dimensional Drawing, AC Models.....	4
Optional Inlet Ring, AC Models.....	4
Impeller and Inlet Ring Interface, AC Models.....	5
Base Mounting Patterns, AC Models.....	5
Wire Diagram, AC Models .....	5
DC Models .....	6
Design Data, DC Models .....	6
Dimensional Drawing, DC Models.....	7
Optional Inlet Ring, DC Models.....	7
Impeller and Inlet Ring Interface, DC Models.....	8
Base Mounting Patterns, DC Models.....	8
Wire Diagram, DC Models .....	8
Impeller Speed Control Interface, DC Models.....	9
WARRANTY .....	10
RETURN AND REPAIR POLICY.....	10
LIMITATION OF LIABILITY.....	11

## RECEIVING THE MOTORIZED IMPELLER

Inspect the motorized impeller. Check for concealed damage that may have occurred during shipment. Look for dents, scratches, loose assemblies, etc. Hold the mounting base and spin by hand to check for free rotation. Some models may cog into position as it comes to a stop. Damage evident upon receipt should be noted on the freight bill. Damage should be brought to the attention of the delivering carrier – NOT to nVent Equipment Protection – within 15 days of delivery. Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier.

nVent Equipment Protection cannot accept responsibility for freight damages; however, we will assist you in any way possible.

## HANDLING AND TESTING THE MOTORIZED IMPELLER

 <b>WARNING</b>
To avoid serious injury, do not energize the motorized impeller before it is securely mounted and guarded.

Refer to the nameplate for proper electrical current requirements, and then connect the leads as shown to a properly grounded power supply. The AC models include a capacitor (shipped loose). Minimum circuit ampacity should be at least 125% of the amperage shown in the design data section for the appropriate model.

# AC MODELS

## DESIGN DATA, AC MODELS

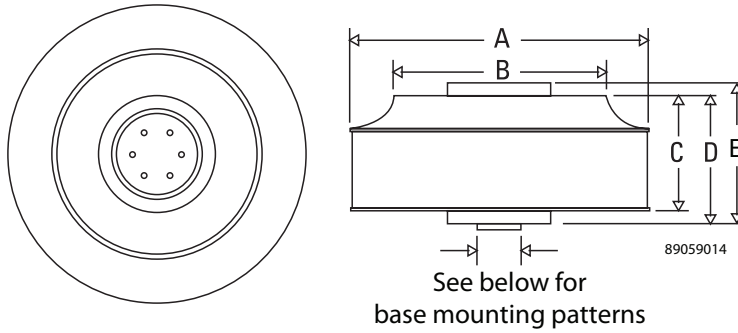
Model	Power Draw			Free Air Flow			Static Pressure		Max .Temp. (°F/°C)	Min. Temp. (°F/°C)	Lead Length (in./cm)
	VAC	Hz	Watts	CFM	M <sup>3</sup> /Hr.	RPM	in H <sub>2</sub> O	Pa			
AB1331196701	115	60	30	173	294	3150	.84	209	140/60	-13/-25	54/137
AB1332396701	230	50/60	28/30	147/173	250/294	2725/3150	.60/.84	149/209	140/60	-13/-25	54/137
AB1751171701	115	60	44	294	500	2875	1.08	269	140/60	-13/-25	54/137
AB1752371701	230	50/60	39/44	255/294	433/500	2515/2875	.83/1.08	207/269	140/60	-13/-25	54/137
AB1901169901	115	60	109	384	652	2930	1.75	436	104/40	-13/-25	54/137
AB1902369901	230	50/60	87/109	343/384	583/652	2600/2930	1.31/1.75	326/436	104/40	-13/-25	54/137
AB2201171901	115	60	120	608	1033	2600	1.78	443	140/60	-13/-25	54/137
AB2202371901	230	50/60	95/120	564/608	958/1033	2400/2600	1.43/1.78	356/443	104/40	-13/-25	54/137
AB2251110901	115	60	195	834	1417	3100	2.67	665	140/60	-13/-25	54/137
AB2252310901	230	50/60	147/195	712/834	1210/1417	2800/3100	1.91/2.67	476/665	140/60	-13/-25	54/137
AB2501199901	115	60	246	846	1437	2760	2.33	580	140/60	-13/-25	54/137
AB2502399901	230	50/60	174/246	794/846	1349/1437	2600/2760	1.98/2.33	493/580	140/60	-13/-25	54/137
AB2801193901	115	60	313	1033	1755	2850	2.83	705	140/60	-13/-25	54/137
AB2802393901	230	50/60	220/313	939/1033	1595/1755	2600/2850	2.32/2.83	578/705	113/45	-13/-25	54/137
AB3201116101	115	60	161	1244	2114	1600	1.48	369	140/60	-13/-25	54/137
AB3202316101	230	50/60	117/161	1095/1244	1860/2114	1400/1600	1.08/1.48	269/369	140/60	-13/-25	54/137
AB3551117101	115	60	172	1558	2647	1590	1.99	496	104/40	-13/-25	54/137
AB3552317101	230	50/60	172/250	1398/1558	2375/2647	1400/1590	1.48/1.99	369/496	104/40	-13/-25	54/137

Input voltage tolerance ± 10%

## CAPACITORS, AC MODELS

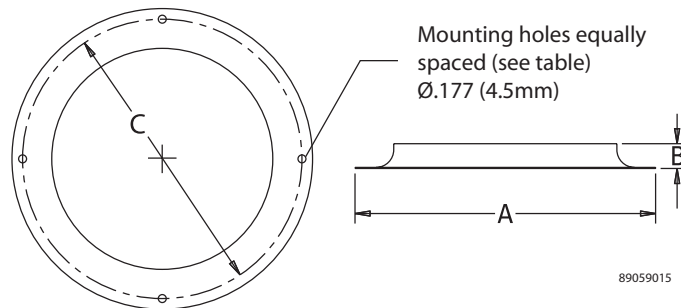
Unit	Voltage	µF	V	Part Number
133	115	2.5	250	52-6032-18
	230	1	450	52-6032-16
175	115	4	250	52-6032-27
	230	1.5	450	52-6032-17
190	115	8	250	52-6032-15
	230	3	450	52-6032-14
220	115	10	250	52-6032-13
	230	3	450	52-6032-14
225	115	20	250	52-6032-24
	230	5	450	52-6032-20
250	115	25	250	52-6032-25
	230	5	450	52-6032-20
280	115	25	250	52-6032-25
	230	8	450	52-6032-22
320	115	16	250	52-6032-23
	230	4	450	52-6032-19
355	115	20	250	52-6032-24
	230	6	450	52-6032-21

## DIMENSIONAL DRAWING, AC MODELS



Model	Diameter (A)		Inside Diameter (B)		Height (C)		Height (D)		Motor Height (E)	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
AB133	5.24	133	3.67	93	2.36	60	3.78	96	--	--
AB175	6.89	175	5.16	131	2.44	62	2.80	71	--	--
AB190	7.48	190	5.16	131	2.44	62	2.70	69	2.80	71
AB220	8.78	223	6.36	162	2.52	64	2.80	71	--	--
AB225	8.86	225	6.06	154	3.50	89	4.21	107	--	--
AB250	9.88	251	6.85	174	3.36	85	3.90	99	--	--
AB280	11.06	281	7.48	190	3.24	82	3.64	93	3.82	97
AB320	12.52	318	8.66	220	5.51	140	6.10	155	--	--
AB355	14.13	359	9.84	250	5.79	147	6.50	165	--	--

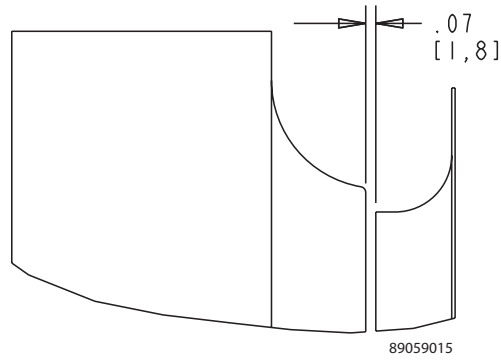
## OPTIONAL INLET RING, AC MODELS



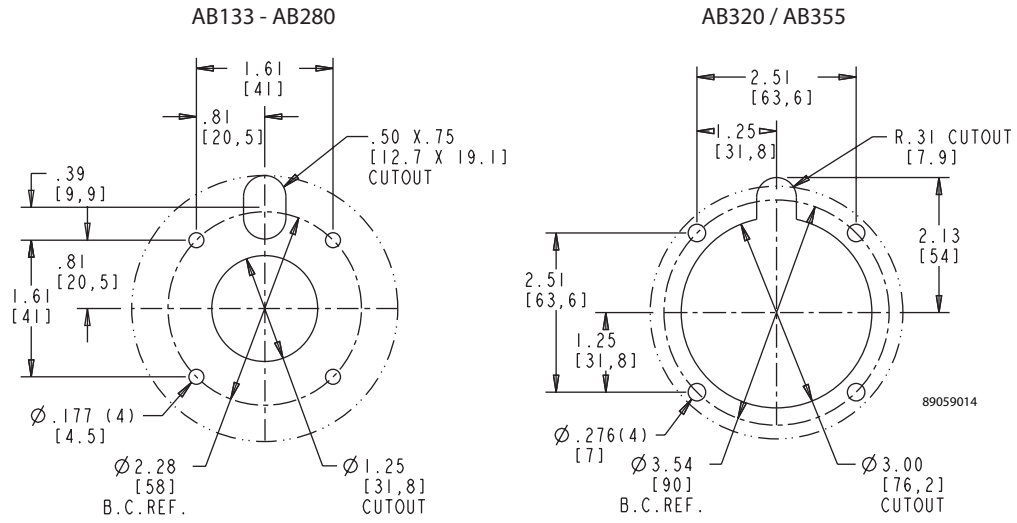
Impeller	Inlet Ring	Diameter (A)		Height (B)		Mounting Hole Diameter (C)		Number of Mounting Holes
		Inch	mm	Inch	mm	Inch	mm	
AB133	101072120SP	5.08	129	.51	13	4.65	118	4
AB175	101072121SP	6.69	170	.55	14	6.22	158	4
AB190	101072121SP	6.69	170	.55	14	6.22	158	4
AB220	101072123SP	9.92	252	.83	21	9.29	236	3
AB225	101072124SP	8.78	223	1.10	28	8.30	211	4
AB250	101072125SP	10.04	255	1.30	33	9.45	240	4
AB280	101072126SP	11.02	280	1.38	35	10.24	260	4
AB320	101072127SP	11.81	300	1.06	27	11.02	280	4
AB355	101072129SP	13.78	350	1.22	31	12.80	325	6

# IMPELLER AND INLET RING INTERFACE, AC MODELS

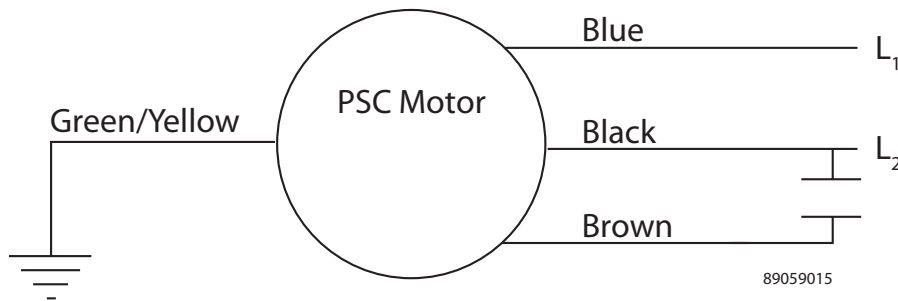
## Wheel and Inlet Ring Recommended Gap



## BASE MOUNTING PATTERNS, AC MODELS



## WIRE DIAGRAM, AC MODELS



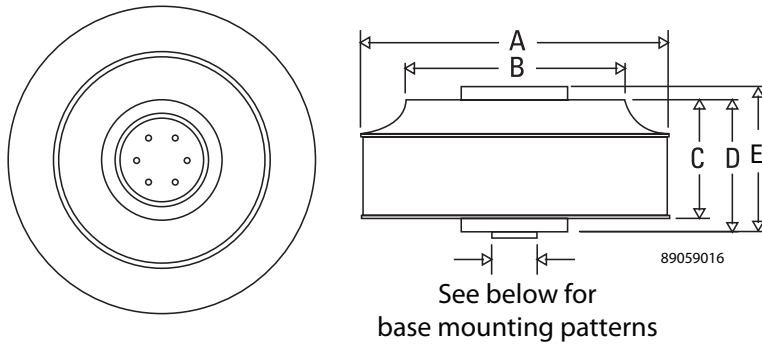
# DC MODELS

## DESIGN DATA, DC MODELS

Model	Power Draw		Free Air Flow			Static Pressure		Max. Temp. (°F/°C)	Min. Temp. (°F/°C)	Lead Length (in./cm)
	VDC	Watts	CFM	M <sup>3</sup> /Hr.	RPM	in H <sub>2</sub> O	Pa			
DB1021254401	12	28	100	170	6400	1.7	423	149/65	-4/-20	30/76
DB1022454401	24	27	100	170	6300	1.7	423	149/65	-4/-20	30/76
DB1024854401	48	25	100	170	6400	1.7	423	149/65	-4/-20	30/76
DB1331242401	12	27	140	238	4600	1.4	348	149/65	-4/-20	30/76
DB1332442401	24	32	140	238	4900	1.4	348	149/65	-4/-20	30/76
DB1334842401	48	35	140	238	4700	1.4	348	149/65	-4/-20	30/76
DB1332491701	24	40	220	373	4600	1.6	399	149/65	-4/-20	30/76
DB1334891701	48	40	220	373	4600	1.6	399	149/65	-4/-20	30/76
DB1752455701	24	58	305	518	3800	2.3	573	149/65	-4/-20	30/76
DB1754855701	48	58	305	518	3800	2.3	573	149/65	-4/-20	30/76
DB1752469701	24	77	360	611	3450	1.8	448	149/65	-4/-20	30/76
DB1754869701	48	77	360	611	3450	1.8	448	149/65	-4/-20	30/76
DB2202471701	24	92	565	960	2950	2.0	498	149/65	-4/-20	30/76
DB2204871701	48	92	565	960	2950	2.0	498	149/65	-4/-20	30/76

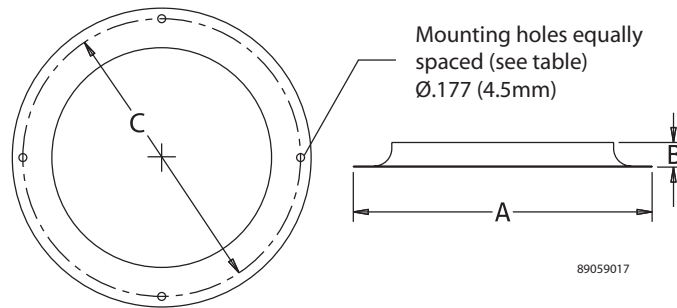
Input voltage tolerance ± 25%

## DIMENSIONAL DRAWING, DC MODELS



Model	Diameter (A)		Inside Diameter (B)		Height (C)		Height (D)		Motor Height (E)	
	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
DB102XX54	4.00	102	2.80	71	1.78	45	2.13	54	--	--
DB133XX42	5.25	133	3.70	94	1.35	34	1.65	42	--	--
DB133XX91	5.25	133	3.70	94	2.35	60	3.58	91	--	--
DB175XX55	6.89	175	5.16	131	1.87	48	2.15	55	2.41	61
DB175XX69	6.89	175	5.16	131	2.46	63	2.70	69	--	--
DB220XX71	8.66	220	6.28	160	2.47	63	2.80	71	--	--

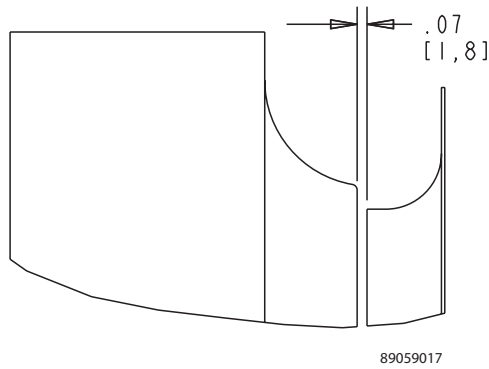
## OPTIONAL INLET RING, DC MODELS



Impeller	Inlet Ring	Diameter (A)		Height (B)		Mounting (C)		Number of Mounting Holes
		Inch	mm	Inch	mm	Inch	mm	
DB102	89070536	4.00	102	.25	6.4	3.70	94	3
DB133	101072120SP	5.80	129	.51	13	4.65	118	4
DB175	101072121SP	6.69	170	.55	14	6.22	158	4
DB220	101072123SP	9.92	252	.83	21	9.29	236	3

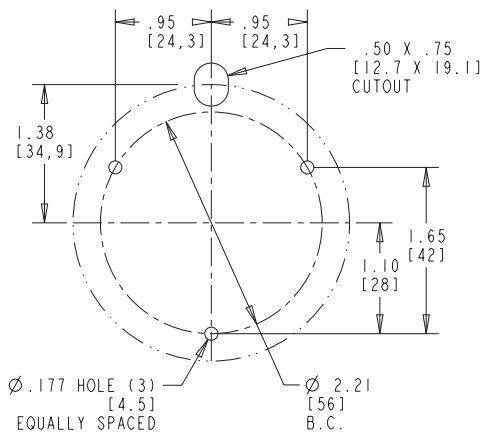
# IMPELLER AND INLET RING INTERFACE, DC MODELS

## Wheel and Inlet Ring Recommended Gap

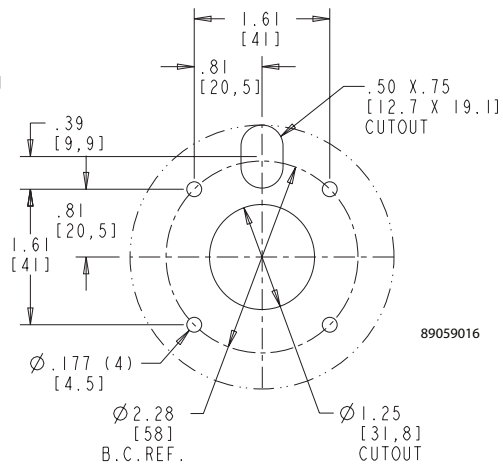


## BASE MOUNTING PATTERNS, DC MODELS

DB102 - DB133-XX42



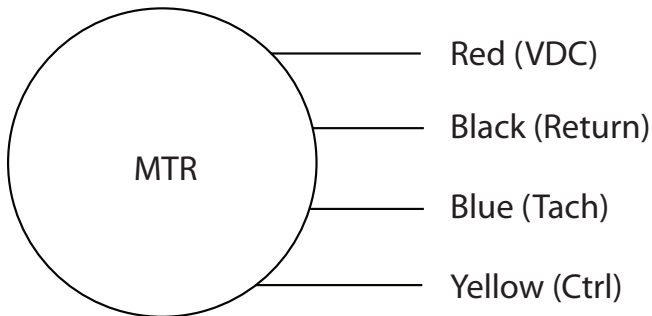
DB133-XX91 - DB220



For models DB102-XX54 and DB133-XX42  
 3 Holes on 2.21 (56 mm) bolt circle diameter.  
 8-32 x .19 maximum thread depth.

For all other models:  
 4 Holes on 2.28 (58.0 mm) bolt circle diameter.  
 M4 x 5mm maximum thread depth.

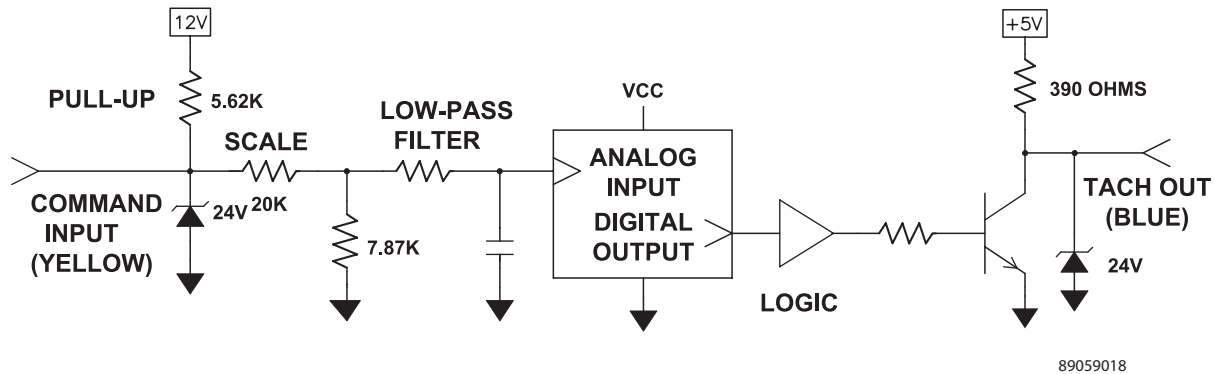
## WIRE DIAGRAM, DC MODELS



89059017



## IMPELLER SPEED CONTROL INTERFACE, DC MODELS



DC Impellers can be speed controlled via the yellow input lead in either of two ways:

1. 250 Hz to 4kHz 10 VDC PWM signal.
2. 0 to 10 VDC analog signal (linear control).

Command input (1 - 10 VDC) corresponds linearly from zero to max bus voltage applied to the motor. Command input must be above 1 VDC before any measurable voltage is applied to the motor. The applied voltage is roughly proportional to the motor speed.

- With the yellow lead left open, the impeller will run at full speed.
- With the yellow lead connected to the black lead, the impeller will stop.
- The blue lead produces a 5 VDC Tach output, 2 pulses per revolution.

## WARRANTY

nVent Equipment Protection warrants that the Goods manufactured by nVent Equipment Protection will be free from defects in material and workmanship for a period of one (1) year from the date of shipment by nVent Equipment Protection, subject to the following conditions and exclusions:

- A. Conditions. All Goods must be installed and operated according to the following specifications:
1. Maximum voltage variation no greater than plus or minus 10% VAC or 25% VDC of nameplate nominal rating;
  2. Maximum frequency variation no greater than plus or minus 3 Hz. of nameplate nominal rating;
  3. Must not exceed minimum and maximum stated temperatures within;
  4. The filters (if applicable) must be cleaned regularly;
  5. The Goods and any parts thereof must not be modified, unless prior written authorization is received from nVent Equipment Protection; and
  6. All Goods must be installed and grounded in accordance with all relevant electrical and safety codes, as well as the National Electric Code and OSHA rules and regulations.
  7. All Goods must be installed in a stationery application, free of vibration.

A violation of any one of these conditions shall render the warranty hereunder void and of no effect.

- B. Exclusions. This warranty shall be void if product is misapplied in any way or:
1. Buyer specified product is inappropriate for system or environment in which it is operating.
  2. nVent Equipment Protection product modified in any way without prior written authorization from nVent Equipment Protection.
  3. Removal or modification of nVent Equipment Protection label affixed to product without written nVent Equipment Protection approval.

nVent Equipment Protection must be notified of a claim in writing not later than fourteen (14) days from the date when Buyer has become aware of such occurrence, or where the defect is such that it may cause damage, immediately, such notice containing a description of how the defect manifests itself. Failure to provide such prompt notice to nVent Equipment Protection shall result in forfeiture of Buyer's rights under this warranty.

In the event of a warranty claim, Buyer is to return defective goods to nVent Equipment Protection in accordance with nVent Equipment Protection Return Policy. Warranty period for repaired goods remains at 1 year from shipment of original goods. nVent Equipment Protection sole obligation to Buyer under this warranty will be, at nVent Equipment Protection option:

- A. Repair or replace nVent Equipment Protection products or parts found to be defective in material or workmanship.
- B. Issue credit for the purchase price paid by Buyer relating to such defective Goods or part.

THIS WARRANTY CONSTITUTES THE ENTIRE WARRANTY WITH RESPECT TO THE GOODS AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

## RETURN AND REPAIR POLICY

nVent Equipment Protection products that: (i) are made to order, (ii) have been modified by Buyer, (iii) have special finishes, or (iv) are determined by nVent Equipment Protection to constitute "custom" products that cannot be returned to stock or resold to other Buyers, will not be accepted for return by nVent Equipment Protection.

All returns require a Return Material Authorization number (RMA #), regardless of reason for return, whether it be for warranty or out of warranty repair. Returns without an RMA # will be refused by our Receiving Department. An RMA # is valid for 60 days.

- A. An RMA # will be issued by our Repair Department in Anoka, MN at 866-545-5252. Buyer should have following information available at time of RMA request:
1. Complete Model Number, Serial Number and description of damaged unit being returned.
  2. Original Buyer Purchase Order number and date product was received by Buyer.
  3. Quantity to be returned and a brief description of failure for each unit, if different.

4. Contact information of Buyer that must include: name of company, billing and shipping address, phone, number, fax number, freight carrier and the name and phone number of a Buyer contact who can elaborate on the claimed defect in detail.
  5. Buyer must provide a Repair Purchase Order number for both warranty and out of warranty repairs. The PO will not exceed 50% of a new unit. Buyer will be notified of repair charges that exceed approved PO amount.
- B. All returns to nVent Equipment Protection must be securely packed, using original cartons if possible. All returns must have the RMA number visible on the outside of the carton. nVent Equipment Protection is not responsible for material damaged in transit. Any refrigerant-bearing Goods must be shipped upright for return.
  - C. Shipping cost for all non-warranty repairs is the responsibility of the sender and must be shipped prepaid. Shipping costs for all warranty related repairs will be covered by nVent Equipment Protection provided the goods are returned using a nVent Equipment Protection approved carrier. If after diagnoses the product is determined by nVent Equipment Protection not be covered under warranty, Buyer will be responsible for all shipping charges and will be billed accordingly.
  - D. Non-warranty repairs are subject to a \$75 minimum analysis fee. Analysis fee will be waived if Buyer approves repair work. If approval is not received within 30 days, material will be scrapped and all shipping expenses and corresponding analysis fees will be billed to Buyer.
  - E. At Buyer's request, Failure Analysis can be provided by nVent Equipment Protection for warrantable goods at no charge. Failure analysis for non-warranty repairs are subject to a \$100 per hour Engineering charge plus any other incurred testing costs.
  - F. All returned merchandise must be sent to the following address: nVent Equipment Protection, 2100 Hoffman Way, Anoka, MN 55303-1745.
  - G. Credit for accepted returns shall be at the original selling price or the current selling price, whichever is lower, less the restocking charge indicated as follows:
    1. Within 60 days of invoice date - 20% of applicable selling price.
    2. Within 61-120 days of invoice date - 30% of applicable selling price.
    3. Within 121-180 days of invoice date - 40% of applicable selling price.
    4. Beyond 180 days - subject to individual review by nVent Equipment Protection.
- If product being returned for credit requires repair or modification, the cost of any labor or material necessary to bring product into saleable condition will be deducted from credit. Buyer may not take credit against returns without prior written nVent Equipment Protection approval.

## LIMITATION OF LIABILITY

NVENT EQUIPMENT PROTECTION WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LOST PROFITS OR LABOR COSTS, ARISING FROM THE SALE, USE OR INSTALLATION OF THE GOODS, FROM THE GOODS BEING INCORPORATED INTO OR BECOMING A COMPONENT OF ANOTHER PRODUCT, FROM ANY BREACH OF THIS AGREEMENT OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON WARRANTY (EXPRESSED OR IMPLIED) OR OTHERWISE BASED ON CONTRACT, OR ON TORT OR OTHER THEORY OF LIABILITY, AND REGARDLESS OF ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY NVENT EQUIPMENT PROTECTION CONCERNING THE SALE, USE OR INSTALLATION OF THE GOODS



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