THE MOST TRUSTED FITTINGS IN NORTH AMERICA

CGA - Standard Carbon Dioxide Liquid & Vapor Transfer Connections

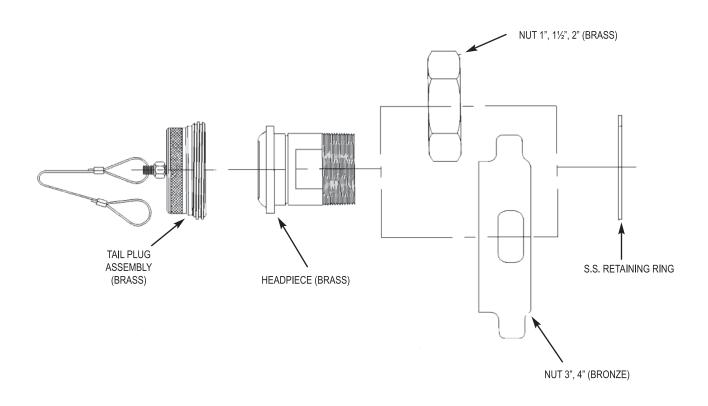
— CATALOG

CGA FITTINGS CO2

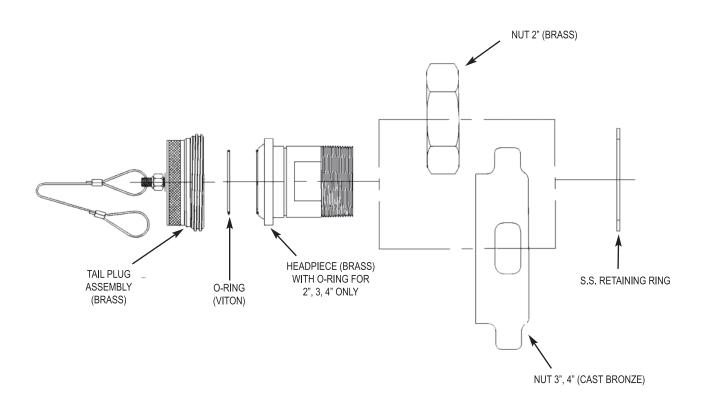
- Designed for safe and reliable cryogenic liquid transfer
- Fully compliant with CGA V6
- Easier and quicker for operators and drivers to connect and disconnect
- Worlds largest inventory of CGA Liquid Transfer Fittings





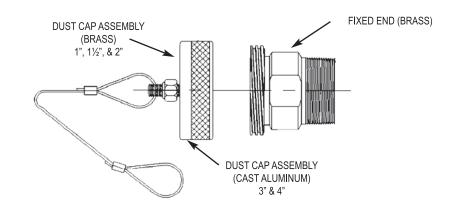


ACME PART NO.	SIZE
320-025-10	1"
320-021-15	1½"
320-032-20	2"
320-039-30	3"



ACME PART NO.	SIZE
320-111-20	2"
320-112-30	3"

FIXED END ASSEMBLY - CARBON DIOXIDE

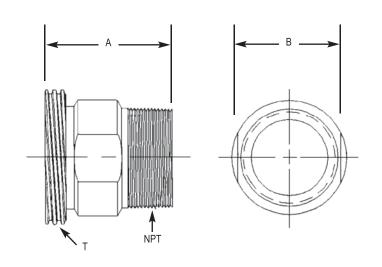


ACME PART NO.	SIZE	DUST-CAP MATERIAL
320-026-10B	1"	BRASS
320-020-15B	1½"	BRASS
320-033-20B	2'	BRASS
320-040-30	3"	CAST ALUMINUM

FIXED END - CARBON DIOXIDE (BRASS)

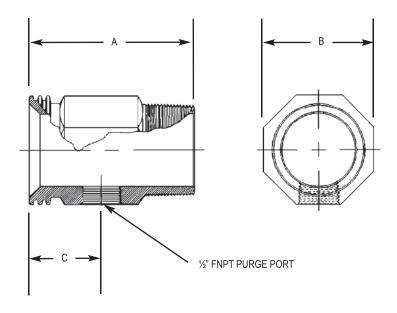
Materials

- ◆ Forged Brass per ASTM B-283 for 1" and 1½" sizes
- ◆ Brass Bar per ASTM B16 for 2", 3" and 4" sizes



			" T "	A		WRENCI	H FLATS
ACME PART NO.	SIZE	NPT	THREAD-SIZE	INCHES	MM	INCHES	MM
320-019-10	1"	1-11½	1.687 - 6 Acme	2.500	63,5	1.375	34.9
320-000-15	1½"	11/2-11½	2.250 - 6 Acme	2.500	63.5	2.000	50.8
320-031-20	2"	2-11½	3.187 - 6 Acme	3.000	76.2	2.500	63.5
320-038-30	3"	3-8	4.500 - 6 Acme	4.062	103.2	3.625	92.1

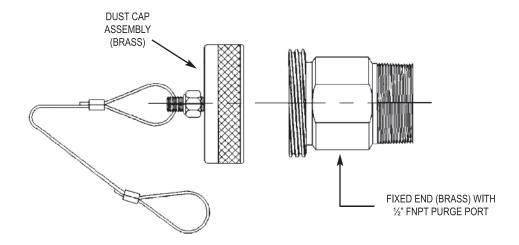
FIXED END CARBON DIOXIDE WITH 1/2" FNPT PURGE PORT (BRASS) -



Material - Brass Bar per ASTM B16

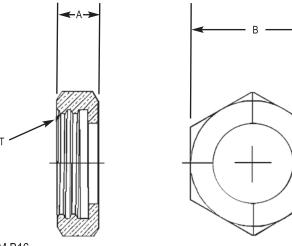
			" T "	A		WRENCH FLATS A B		C	
ACME PART NO.	SIZE	NPT	THREAD-SIZE	INCHES	MM	INCHES	MM	INCHES	MM
320-086-10	1"	1-11½	1.687-6 Acme	4	101.6	13/4	44.5	2 ⁷ / ₁₆	61.9
320-087-15	1½"	1½-11½	2.250-6 Acme	4	101.6	23/8	60.3	27/16	61.9

FIXED END ASSEMBLY CARBON DIOXIDE WITH 1/2" FNPT PURGE PORT -



ACME PART NO.	SIZE	DUST-CAP MATERIAL
320-114-10	1"	BRASS
320-115-15	1½"	BRASS

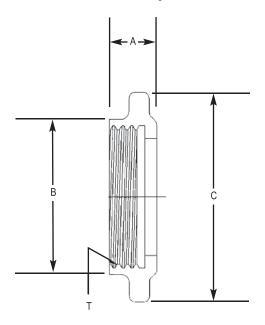
- Hose Nut Carbon Dioxide (Brass)



Material - Brass Bar per ASTM B16

		" T "	А		HEX B		
ACME PART NO.	SIZE	THREAD-SIZE	INCHES	MM	INCHES	MM	MATERIAL
320-015-10	1"	11 ¹ / ₁₆ -6 Acme	1.10	28.0	21/4	57.2	BRASS
320-008-15	1½"	21/4-6 Acme	1.10	28.0	23/4	69.9	BRASS
320-027-20	2"	3³/16 - 6 Acme	1.25	31.8	3¾	95.3	BRASS
ASK-40-0090	1"	111/ ₁₆ -6 Acme	1.10	28.0	23/4	69.9	BRASS

Hose Nut Carbon Dioxide (cast high strength magnesium bronze)



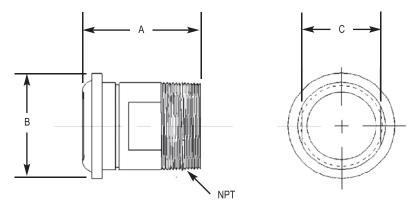
Material - Cast High Standard Magnesium Bronze per ASTM B584

		" T "	А		В		С	
ACME PART NO.	SIZE	THREAD-SIZE	INCHES	MM	INCHES	ММ	INCHES	ММ
320-034-30	3"	4½"-6 Acme	1.50	38.1	5	127.0	6.75	171.5

HEAD PIECE CARBON DIOXIDE (BRASS) —

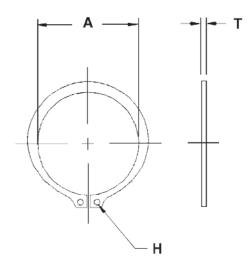
Materials:

- ◆ Forged Brass per ASTM B283 for 1" and 1½" sizes
 ◆ Brass Bar per ASTM B16 for 2", 3", and 4" sizes



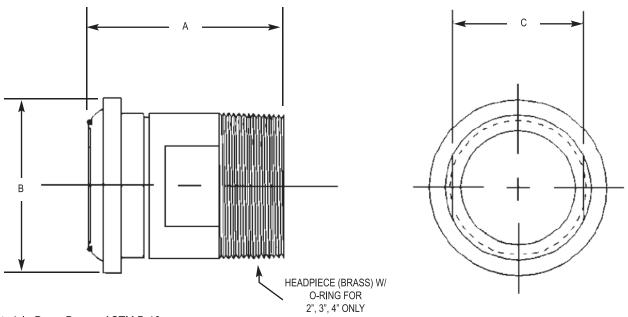
			A		В		WRENCH FLATS C	
ACME PART NO.	SIZE	NPT	INCHES	ММ	INCHES	MM	INCHES	MM
320-016-10	1"	1-11½	2.625	66.7	1.500	38.1	1.187	30.1
320-014-15	1½"	1½-11½	2.750	69.9	2.085	53.0	1.687	42.8
320-028-20	2"	2-11½	3.156	80.2	2.875	73.0	2.125	54.0
320-035-30	3"	3-8	4.187	106.3	4.250	108.0	3.250	82.6

RETAINING RINGS FOR HOSE END ASSEMBLIES -



		А		Т		ŀ		
ACME PART NO.	SIZE	INCHES	ММ	INCHES	MM	INCHES	ММ	MATERIAL
ASK-40-0447	1"	1.214	30.84	.050	1.27	.078	1.98	Stainless Steel
ASK-40-0448	1½"	1.819	46.20	.062	1.57	.125	3.18	Stainless Steel
ASK-40-0449	2"	2.197	55.80	.078	1.98	.125	3.18	Stainless Steel
ASK-40-0451	3"	3.552	90.22	.120	3.048	.187	4.75	Zinc Plated Steel

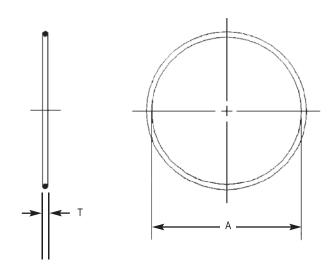
HEADPIECE CARBON DIOXIDE WITH O-RING



Material - Brass Bar per ASTM B-16

			Α		В		С	
ACME PART NO.	SIZE	NPT	INCHES	ММ	INCHES	ММ	INCHES	MM
320-108-20	2"	2-11½"	3.156	80.2	2.875	73.0	2.125	54.0
320-109-30	3"	3-8	4.187	106.3	4.250	108.0	3.250	82.6

O-RING FOR HEADPIECE WITH O-RING OPTION (VITON)

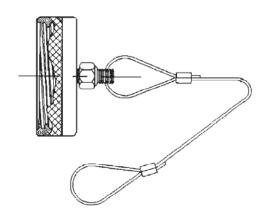


		A	4	1	Г
ACME PART NO.	SIZE	INCHES	ММ	INCHES	ММ
ASK-40-0145	2"	1.989	50.52	.063	1.78
ASK-40-0146	3"	2.987	75.87	.094	2.62

DUST CAP ASSEMBLY CARBON DIOXIDE -

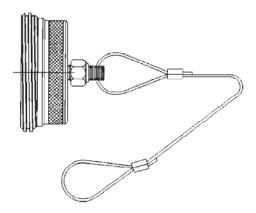
Materials:

- ◆ Brass Bar per ASTM-B16, with Stainless Steel Safety Cable for 1", 1½" and 2" sizes
- ◆ Aluminum Bar per ASTM B-221, with Stainless Steel Safety Cable for 3" and 4" sizes



ACME PART NO.	SIZE	MATERIAL
320-088-10	1"	BRASS
320-089-15	1½"	BRASS
320-090-20	2"	BRASS
320-104-30	3"	ALUMINUM

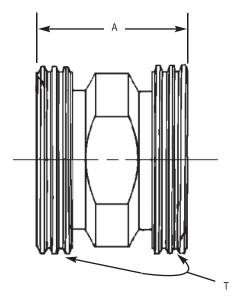
Dust Plug Assembly Carbon Dioxide (Brass) ———



Material - Brass Bar per ASTM B16, with Stainless Steel Safety Cable

ACME PART NO.	SIZE
320-099-10	1"
320-100-15	1½"
320-101-20	2"
320-102-30	3"

MALE TO MALE ADAPTER TO CONNECT TWO OR MORE LENGHTS OF HOSES (BRASS)

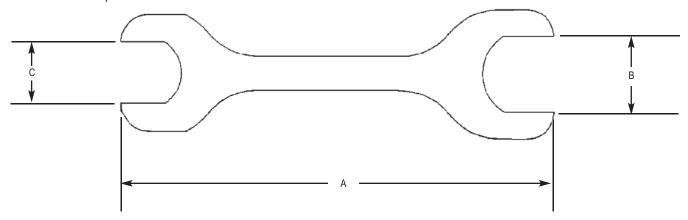


Material - Brass per ASTM B16

		A		"T"	WRENC	H FLATS
ACME PART NO.	SIZE	INCHES	ММ	THREAD-SIZE	INCHES	MM
320-048-10	1"	3.375	85.7	1.687-6 Acme	1.375	34.9
320-049-15	1½"	3.375	85.7	2.250-6 Acme	2.000	50.8
320-050-20	2"	3.375	85.7	3.187-6 Acme	2.500	63.5
320-051-30	3"	3.375	85.7	4.500-6 Acme	3.625	92.1
320-079-20	2"-1½"	3.375	85.7	3.187-6 Acme 2.250-6 Acme	2.500	63.5
320-080-15	1½"-1"	3.375	85.7	2.250-6 Acme 1.687-6 Acme	2.000	50.8

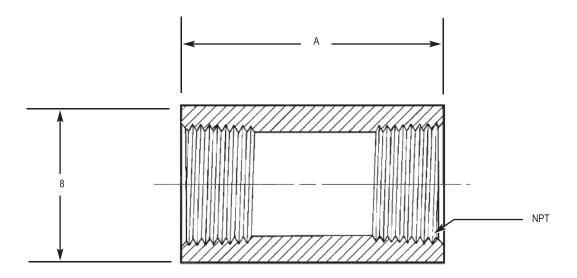
OPEN END WRENCHES (ALUMINUM ANODIZED)

Material - Cast Aluminum per ASTM B26



		Α		I	3	С		
ACME PART NO.	FITS	INCHES	MM	INCHES	MM	INCHES	MM	
ASK-40-0038	1" & 1½" Nut	16	406.4	2¾	69.9	21/4	57.2	
ASK-40-0039	1" & 1½" FE*	16	406.4	1³/ ₈	34.9	2	50.8	
ASK-40-0067	1" & 2" FE*	16	406.4	1³/ ₈	34.9	2½	63.5	
ASK-40-0068	1" & 2" Nut	20	508.0	21/4	57.2	3¾	95.3	
ASK-40-0069	2" Nut / 2" FE*	20	508.0	3¾	95.3	2½	63.5	
ASK-40-0085	1½" & 2" Nut	20	508.0	3¾	95.3	23/4	69.9	

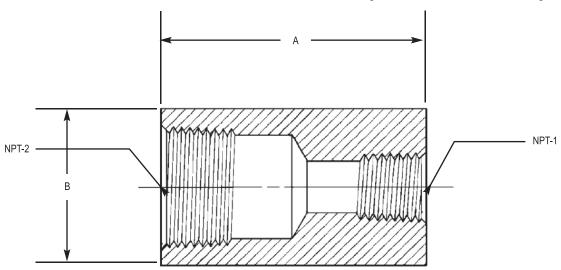
*FE - Fixed End



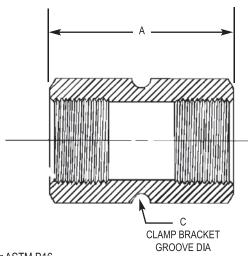
Material - Type 304 Stainless Steel per ASTM A276

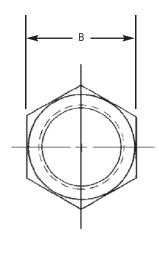
		A B					
ACME PART NO.	HOSE SIZE	NPT	INCHES	ММ	INCHES	ММ	
ASK-40-0425	1"	1-11½	2.375	60.3	1.75	44.5	
ASK-40-0427	1½"	1½-11½	3.125	79.4	2.50	63.5	
ASK-40-0428	2"	2-11½	3.375	85.7	3.000	76.2	

REDUCING COUPLINGS TO ADAPT MALE NPT HOSES (304 STAINESS STEEL)———



			A B		А		3
ACME PART NO.	HOSE SIZE	NPT 1	NPT 2	INCHES	MM	INCHES	MM
ASK-40-0431	1½"	1-11½	1½-11½	3,125	79.4	2.50	63.5
ASK-40-0432	2"	1½-11½	2-11½	3.375	85.7	3.00	76.2

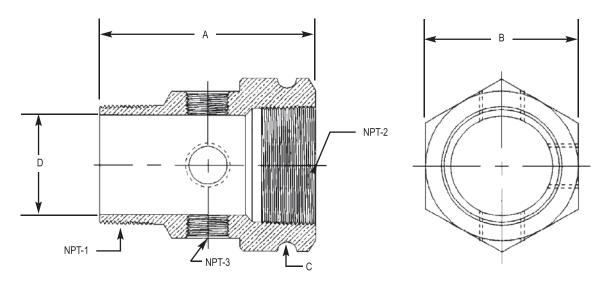




Material - Brass per ASTM B16

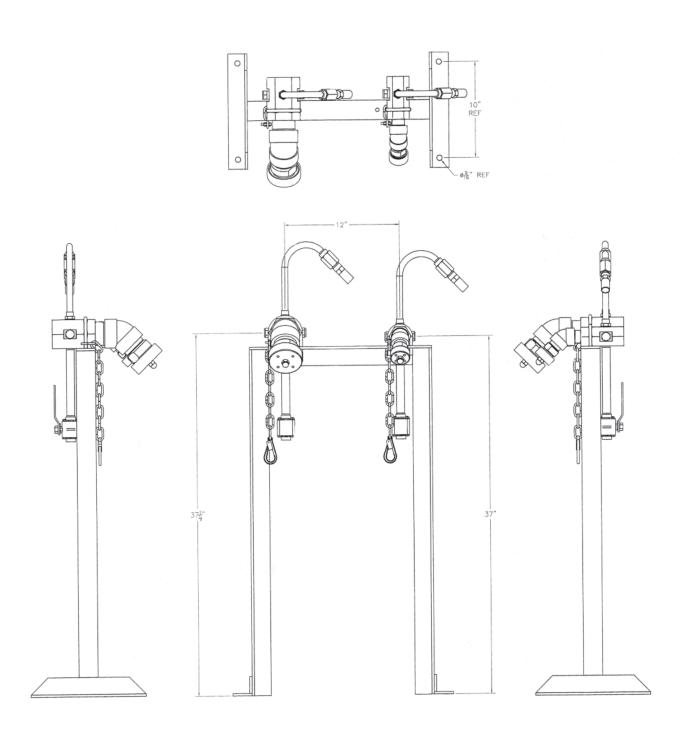
			A		A B		C	;
ACME PART NO.	HOSE SIZE	NPT	INCHES	MM	INCHES	MM	INCHES	MM
ASK-40-0072	1"	1-11½"	2.50	63.5	1.75 Hex	44.5	1.72	43.7
ASK-40-0073	1½"	1½-11½	2.50	63.5	2.50 Hex	63.5	2.47	62.7
ASK-40-0074	2"	2-11½	2.50	63.5	3.00 Hex	76.2	2.97	73.7

HEX BRASS BUSHING WITH 3 PURGE PORTS TO ADAPT TRAILERS FOR FIXED ENDS



Material - Brass ASTM B16 shipped complete with two ½" Brass Pipe Plugs

		NPT		Α		В		С		D		
ACME PART NO.	SIZE	1	2	3	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
ASK-40-0124	1"	1-11½	1-11½	1/2-14	4.250	107.9	2.500*	63.5	2.47	62.7	1.00	25.4
ASK-40-0076	1½"	1½-11½	1½-11½	1/2-14	4.250	107.9	2.500*	63.5	2.47	62.7	1.50	38.1
ASK-40-0077	2"	2-11½	1½-11½	1/2-14	4.250	107.9	2.500*	63.5	2.47	62.7	1.50	38.1
ASK-40-0078	2"	2-11½	2-11½	1/2-14	4.250	107.9	3.000*	76.2 *HEX	2.97	73.7	2.00	50.8



ACME PART NO.

274-823975

TERMS AND CONDITIONS ———

1. PRICES AND TERMS OF SHIPMENT: All prices quoted in Seller's current pricing catalog or in discussions with Buyer (neither of which are valid for more than thirty (30) days) supersede all prior quotations and are subject to change from time to time as Seller's business dictates. Buyer further agrees and acknowledges that it will be billed at prices in effect in Seller's then-current pricing catalog at time of shipment for goods and products. Buyer's minimum order amount shall be \$35.00 net, unless otherwise agreed by Seller in writing.

All shipments are FOB Place of Shipment which shall be Seller's place of business unless otherwise expressly agreed by Seller in writing. All shipments of goods shall be insured at Buyer's expense and shall be made at Buyer's expense.

- 2. TERMS: Unless otherwise agreed by Seller in writing, Buyer shall remit payment to Seller in immediately available U.S. currency no later than 30 days from the date of Seller's invoice for goods and services provided hereunder. Past due payments shall bear interest at one and a half (1-1/2%) percent per month and Buyer shall be liable for any and all costs and expenses of Seller, including, without limitation, reasonable attorneys' fees incurred by Seller as a result of any past due payments hereunder.
- 3. TAXES: Buyer shall and hereby covenants to be liable for and pay all taxes, impositions, charges and exactions (hereinafter collectively referred to as "Taxes") imposed upon any goods and/or services provided by Seller under Buyer's Order, regardless of the actual party upon whom any such Taxes are legally imposed. To the extent that Buyer claims any available exemption from any Taxes, Buyer shall and hereby covenants to furnish Seller a valid exemption certificate or other legal evidence of exemption prior to Seller making any performance under the terms of this Order. Seller hereby releases, remises, quitclaims and discharges Seller of, from and against any and all liability and/or claims arising out of or in any way related to Seller's refusal to perform as a result of Buyer's failure to provide a valid exemption certificate of other legal evidence of exemption from applicable Taxes.
- 4. TITLE AND RISK OF LOSS: Seller's responsibility shall cease upon delivery of the goods to the appropriate transportation companies. Seller's performance hereunder shall be subject to delays resulting from governmental requirements, strikes, or other concerted acts of workmen, fires, floods, explosions, riots, war or armed conflict (declared or undeclared), accidents, acts of God, acts of terrorism, and other causes reasonably beyond Seller's control. Title and risk of loss shall pass to and be borne by the Buyer upon delivery of the goods to the first carrier of any shipper utilized to deliver any goods contemplated by Buyer's Order. To the extent that Buyer's Order relates to services to be provided by Seller, the parties hereby agree and acknowledge that the risk of loss in connection with any work performed by Seller hereunder shall pass to Buyer proportionately as Seller completes its services pursuant to Buyer's Order. The parties further agree and acknowledge that title with respect to any finished goods and/or products resulting from any services of Seller hereunder shall not pass to Buyer until such time as Seller has been paid all sums due pursuant to the terms of Buyer's Order. Seller shall not, under any circumstances, be responsible for any damage to any products or goods, which shall occur during shipment, and no such damage shall relieve Buyer of any obligations to Seller hereunder.
- **5. SECURITY INTEREST:** In order to protect Seller's interest in any goods, products and/or services provided pursuant to Buyer's Order, Buyer hereby grants Seller a security interest in any and all such goods, products and/or services and hereby warrants to Seller that no such goods, products or services are subject to any security interest or lien, legal or equitable, superior to that of Seller. Buyer shall and hereby covenants to execute and deliver such documents and perform such acts as Seller may require to evidence, establish and protect the security interest granted herein to Seller including, without limitation, any financing statements required by applicable law. Buyer nonetheless agrees and acknowledges that to the extent Buyer fails or in any way refuses to execute and deliver any such documents to Seller, Buyer grants to Seller an irrevocable power of attorney to execute and deliver any and all such documents on Buyer's behalf for the purpose of evidencing, establishing and protecting any security interest granted pursuant to this Section 5.
- 6. WARRANTY/REJECTION OF NON-CONFORMING GOODS: Seller warrants to Buyer that the products and goods of Seller's own manufacture supplied hereunder will, for a period of 12 months from the date of shipment to Buyer, be free from defects in material and workmanship under normal and proper operation conditions and service. The obligation of Seller, and Buyer's sole and exclusive remedy, pursuant to this warranty shall be for Seller (at its option) to repair or replace any product or part thereof which is returned to Seller's principal place of business, with transportation charges prepaid and thereafter determined by Seller to not comply with the terms of Seller's warranty above. Notwithstanding the foregoing, Seller shall have no warranty obligation hereunder if all payments due from Buyer have not been made, or the product or part becomes defective in whole or in part as the result of repairs not made by Seller or as the result of removal, improper use, operation above rated capacities or misapplication thereof after it has been delivered to the Buyer.

Seller shall be responsible for the replacement of non-conforming goods rejected by Buyer, provided that Buyer reports said non-conformance (including, without limitation, errors in quantity or weight) to Seller in writing within ten (10) days of receipt of such goods. Products and parts made by other manufacturers are not warranted by Seller and Buyer hereby expressly agrees and acknowledges that Buyer shall only have such warranty with respect to products and parts made by manufacturers and/or persons other than Seller as provided by such other manufacturers and/or persons provided to Seller.

EXCEPT AS SET FORTH HEREIN, SELLER MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND BUYER ACKNOWLEDGES THAT IT IS NOT RELYING UPON SELLER'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS SUITABLE FOR ANY PARTICULAR PURPOSE OR UPON ANY AFFIRMATIONS OF FACT OR PROMISES OF SELLER WHICH EXTEND BEYOND SPECIFICATIONS MUTUALLY AGREED UPON IN WRITING BY SELLER AND BUYER. IN THAT REGARD, AND EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, BUYER AGREES AND ACKNOWLEDGES THAT IT IS ACCEPTING ANY GOODS, SERVICES AND/OR PRODUCTS HEREUNDER ON AN "AS-IS" AND WITH "ALL FAULTS BASIS". FURTHERMORE, BUYER HEREBY EXPRESSLY AGREES AND ACKNOWLEDGES THAT SELLER SHALL HAVE NO LIABILITY OF ANY NATURE HEREUNDER BEYOND REPLACEMENT OR REPAIR OF ANY DEFECTIVE GOODS AND/OR SERVICES EXCEPT AS EXPRESSLY SET FORTH HEREIN, AND SELLER SHALL FURTHER HAVE NO LIABILITY OR OBLIGATION OF ANY NATURE FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF REVENUE OR PROFITS) ARISING OUT OF OR IN ANY WAY RELATED TO THIS ORDER REGARDLESS OF WHETHER SUCH DAMAGES ARE BASED IN TORT, WARRANTY, CONTRACT OR ANY OTHER LEGAL AND/OR EQUITABLE THEORY, AND EVEN IF SELLER HAS BEEN ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES, BUYER HEREBY EXPRESSLY RELEASING, REMISING, QUITCLAIMING AND FOREVER DISCHARGING SELLER FROM ANY AND ALL SUCH LIABILITY. NOTWITHSTANDING ANY OTHER PROVISION HEREIN TO THE CONTRARY, IN NO EVENT SHALL SELLER'S TOTAL LIABILITY EXCEED THE PRICE ACTUALLY PAID BY BUYER FOR THE GOODS AND/OR SERVICES CONTEMPLATED BY THIS ORDER.

- 7. RETURN GOODS: All goods purchased hereunder can only be returned with Seller's written permission and instructions. When not covered by Seller's warranty above, such returns will be subject to a deduction for a restocking charge of up to thirty (30%) percent of the purchase price, and all transportation charges, including freight and cartage, will be paid by Buyer. Material made on special order shall not be returned under any circumstances. No waiver, alteration or modification of these terms and conditions shall be binding on Seller unless made in writing and agreed to by a duly authorized officer or agent of Seller.
- 8. ACCEPTANCE: If Buyer has submitted a purchase order to Seller containing provisions contrary to these terms and conditions, Buyer hereby expressly agrees and acknowledges that these terms and conditions shall control unless Seller has expressly agreed otherwise in a written document executed by an authorized officer or agent on behalf of Seller. Buyer hereby agrees and acknowledges that Seller's sales agents shall not have the authority to bind or in any way alter the terms and provisions of these terms and conditions of Buyer's Order. Buyer's acceptance and use of any goods and/or services hereunder shall be deemed conclusively that all such goods and/or services are conforming and satisfactory to Buyer hereunder.
- 9. SEVERABILITY: In the event that any provision of this Order shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.
- 10. GOVERNING LAW/CHOICE OF FORUM: This Order is made in the Commonwealth of Pennsylvania and it (along with all rights, duties and obligations arising hereunder) shall be construed, interpreted and enforced in accordance with the laws of the Commonwealth of Pennsylvania. The parties further agree that any claim or action relating in any way to Buyer's Order (with the exception of actions in which Seller seeks equitable relief) shall be brought in the Court of Common Pleas of Lehigh County, Pennsylvania, or if based solely upon federal law, in the United States District Court for the Eastern District of Pennsylvania.

TERMS AND CONDITIONS CONT. -

- 11. SUCCESSORS AND ASSIGN: Buyer may not transfer or assign any of its rights or delegate any of its obligations hereunder without the express prior written consent of Seller. This Order shall be binding upon, and inure to the benefit of, Seller and its respective successors and assigns, including any corporation with which, or into which, Seller may be merged or which may succeed to its assets or business.
- 12. TERMINATION: In the event of Buyer's Bankruptcy, Seller, without any prejudice to any other right or remedy available hereunder or pursuant to applicable law, shall be entitled to cancel and terminate this Order or suspend any further deliveries under Buyer's Order without any liability of any nature to Buyer, and to the extent of goods, products or services delivered but not paid for, the total amount due for said goods, products or services shall immediately become due and payable notwithstanding any previous agreement or arrangement to the contrary. For purposes of this Section 12, Buyer's Bankruptcy shall mean any event in which Buyer shall become insolvent, shall request its creditors for a moratorium, shall enter into an assignment for the benefit of creditors, or shall suffer the appointment of a temporary or permanent receiver, trustee or custodian for all or a substantial part of its assets which shall not be discharged within thirty (30) days, or shall file a voluntary petition for relief under the United States Bankruptcy Code, as amended from time to time or similar foreign law, or in the event an order for relief under the Bankruptcy Code shall be entered concerning Buyer or if a petition or an answer shall be filed proposing the entry of an order for relief against Buyer under the Bankruptcy Code, which is not discharged or denied within thirty (30) days after the filing thereof. Seller shall otherwise be entitled to terminate this Order upon five (5) days prior notice to Buyer in the event Buyer breaches any of the terms and/or provisions contained herein. Notwithstanding any other provision herein to the contrary, in the event that Buyer fails to remit payment in accordance with the terms herein, Seller may suspend any and all performance hereunder until such time as Buyer becomes fully current on any and all payments due to Seller hereunder. The parties agree that Seller's remedies hereunder shall be fully cumulative and the exercise of one or more remedies shall not prejudice or prevent Se
- 13. NO GRANT OF LICENSE: The parties hereby expressly agree and covenant that except as otherwise expressly provided in a separate written agreement executed by the parties, this Order shall not be construed as granting any right, license, interest or claim of any nature in any trademark, service mark, patent, trade secret, invention, intellectual property right, or confidential information of the parties.
- **14. EXPORT TERMS:** Buyer shall be responsible for complying with any and all laws and/or regulations governing the exportation of any goods or products delivered hereunder from the United States and the importation of any such goods or products in the country of destination, including, without limitation, the payment of any taxes and/or duties thereof.
- 15. NO WAIVER: The waiver by a party of any term, covenant, agreement or condition herein contained shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant, agreement or condition herein contained. No covenant, term, agreement or condition of this Order shall be deemed to have been waived by a party unless such waiver is in writing by such party.
- **16. ENTIRE AGREEMENT:** Buyer's Order (which includes all writings signed by a duly authorized agent of Seller, and Buyer's purchase order except for any terms inconsistent with the terms hereof) contains the entire understanding between the parties hereto with respect to the subject matter hereof, and supersedeas all prior and contemporaneous agreements and understanding, inducements or conditions, express or implied, oral or written, among the parties with respect to such subject matter, except as herein contained. Buyer's Order may only be amended by a writing signed by all of the parties hereto.
- 17. SELLER: The term "Seller" shall be deemed to mean Acme Cryogenics, Inc. or Quality Cryogenics, LLC, as the case may be.



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