

3T additive manufacturing limited

Website Terms and Conditions of Supply

This page (together with our Privacy Policy, Cookies Policy and Terms of Website Use) gives you, the Customer, information about 3T additive manufacturing limited, the Supplier, and the legal terms and conditions (**Terms**) on which the Supplier sells goods (**Goods**) through its website (**our site**) to the Customer.

These Terms will apply to any contract for the sale of goods to the Customer (**Contract**). Please read these Terms carefully and make sure that you understand them, before ordering any Goods from our site. Please note that before placing an order you will be asked to agree to these Terms. If you refuse to accept these Terms, you will not be able to order any Goods from our site.

You should print a copy of these Terms or save them to your computer for future reference.

We amend these Terms from time to time. Every time you wish to order Goods, please check these Terms to ensure you understand the terms which will apply at that time.

Orders may only be placed in English. These Terms, and any Contract, are only in the English language.

1. INFORMATION ABOUT THE SUPPLIER

1.1 We operate the website www.3t-am.com. We are 3T additive manufacturing limited, a company registered in England and Wales under company number 03333366 and with our registered office at Fulton Court, Wofford Way, Greenham Business Park, Newbury Berkshire RG19 6HD. Our VAT registered number is GB 724 5113 62.

1.2 To contact us, please email: enquiries@3t-am.com or telephone our customer service line on +44 (0)1635 580 284. If you wish to give us formal notice of any matter in accordance with these Terms, please see clause 16.2.

2. USE OF OUR SITE

Your use of our site is governed by our Terms of Website Use policy. Please take the time to read this, as it includes important terms which apply to you.

3. INTERPRETATION

3.1 **Definitions.** In these Terms, the following definitions apply:

- (a) **Business Day:** a day (other than a Saturday, Sunday or public holiday) when banks in London are open for business.

- (b) **Confidential Information:** any information of a confidential nature concerning the business, affairs, customers, clients or suppliers of the other party or of any member of its Group, including but not limited to information relating to a party's operations, processes, plans, product information, know-how, CAD or other diagrams and/or drawings, designs, trade secrets, software, market opportunities and customers.
- (c) **Contract:** the contract between the Supplier and the Customer for the sale and purchase of the Goods in accordance with these Terms.
- (d) **Customer:** the person or firm who purchases the Goods from the Supplier.
- (e) **Group:** in relation to a company, that company, any subsidiary or holding company from time to time of that company, and any subsidiary from time to time of a holding company of that company.
- (f) **Intellectual Property (IP) Rights:** patents, utility models, rights to inventions, copyright and neighbouring and related rights, moral rights, trademarks and service marks, business names and domain names, rights in get-up and trade dress, goodwill and the right to sue for passing off or unfair competition, rights in designs, rights in computer software, database rights, rights to use, and protect the confidentiality of, confidential information (including know-how and trade secrets) and all other intellectual property rights, in each case whether registered or unregistered and including all applications and rights to apply for and be granted, renewals or extensions of, and rights to claim priority from, such rights and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world.
- (g) **Order:** the Customer's order for the Goods submitted via the website.
- (h) **Specification:** any specification for the Goods, including any related plans, production agreement, quality requirements, CAD, designs or other diagrams and/or drawings, that are submitted via the website and/or agreed in writing by the Customer and the Supplier.

3.2 **Construction.** In these Terms, the following rules apply:

- (a) A person includes a natural person, corporate or unincorporated body (whether or not having separate legal personality).
- (b) A reference to a party includes its personal representatives, successors or permitted assigns.
- (c) A reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted.
- (d) Any phrase introduced by the terms including, include, in particular or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.

- (e) A reference to writing or written includes faxes and e-mails.

4. OUR RIGHT TO VARY THESE TERMS

- 4.1 We amend these Terms from time to time. Every time you order Goods from us, the Terms in force at the time of your order will apply to the Contract between you and us.

5. THE CONTRACT

- 5.1 The purchase of goods online is available only to business customers. By ordering goods online you confirm that you are a business customer and that you are buying goods for business reasons.

- 5.2 You confirm that you have authority to bind any business on whose behalf you use our site to purchase Goods.

- 5.3 You represent and warrant that you are at least 18 years of age.

- 5.4 You confirm that any file you upload to the Supplier's website does not violate any applicable law or regulation.

- 5.5 These Terms apply to the Contract to the exclusion of any other terms that the Customer seeks to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

- 5.6 The Contract constitutes the entire agreement between the parties unless any other agreements are expressly referenced herein. The Customer acknowledges that it has not relied on any statement, promise, representation, assurance or warranty made or given by or on behalf of the Supplier which is not set out in the Contract.

- 5.7 Any samples, drawings, descriptive matter, or advertising produced by the Supplier and any descriptions or illustrations contained in the Supplier's catalogues or brochures are produced for the sole purpose of giving an approximate idea of the Goods described in them. They shall not form part of the Contract or have any contractual force.

6. HOW THE CONTRACT IS FORMED

- 6.1 The order pages will guide you through the steps you need to take to place an order with the Supplier. The order process allows you to check and amend any errors before submitting your order to the Supplier. Please take the time to read and check your order at each page of the order process.

- 6.2 The Customer is responsible for ensuring that the terms of the Order and any applicable Specification submitted by the Customer are complete and accurate. Due to the bespoke nature of the production service the Supplier provides the Customer cannot cancel the Order after it is submitted and cancellation refunds are not available.
- 6.3 After you place an Order, you will receive an e-mail from the Supplier acknowledging that it has received your Order. However, please note that this does not mean that your order has been accepted.
- 6.4 The Supplier will confirm its acceptance to you by sending you an e-mail. The Order constitutes an offer by the Customer to purchase the Goods in accordance with these Terms. The Contract will only be formed when the Supplier sends you the acceptance confirmation.
- 6.5 The Supplier may in its absolute discretion, for technical or other reasons, not accept or cancel the Order, even after acceptance. Reasons include, but are not limited to, the unfeasibility of the Specification or the nature of the Good that has been ordered. If the Supplier is unable to accept or process your Order it will usually inform you of this by e-mail within two working days of the Order being placed and the Supplier will not proceed with your Order. If you have already paid for the Goods, the Supplier will refund you the full amount including any delivery costs charged as soon as possible.

7. GOODS

- 7.1 The Goods are described in the Specification.
- 7.2 By submitting an Order the Customer confirms that it is the owner and/or has obtained from a third party the rights necessary for submitting the Order without any violation of any Intellectual Property Rights.
- 7.3 To the extent that the Goods are to be manufactured in accordance with a Specification supplied by the Customer, the Customer shall;- retain all pre-existing Intellectual Property Rights in the Specification, grant use of the Specification to the Supplier for the sole purposing of fulfilling the Customer Order, and shall indemnify the Supplier against all liabilities, costs, expenses, damages and losses (including any direct, indirect or consequential losses, loss of profit, loss of reputation and all interest, penalties and legal and other reasonable professional costs and expenses) suffered or incurred by the Supplier in connection with any claim made against the Supplier for actual or alleged infringement of a third party's Intellectual Property Rights arising out of or in connection with the Supplier's use of the Specification. This clause 7.3 shall survive termination of the Contract.

- 7.4 Any and all pre-existing (background) Intellectual Property Rights which may be utilised by the Supplier in the production of the Goods, and any Intellectual Property Rights arising as a result of Supplier proposals, (at the request of the Customer) in order to improve fitness for manufacture of the Goods, have been developed independently by the Supplier, belong wholly to, and shall remain the absolute property of the Supplier save that where the Supplier makes proposals to enhance fitness for manufacture such proposals will be used by the Supplier only in respect of the Customer Order and the Customer shall not be permitted to use, or permit a third party to use, the *modified* Specification. Any process improvements or Intellectual Property Rights that the Supplier may develop in order to fulfil its obligations under the Order belong wholly to, and shall remain the absolute property of the Supplier.
- 7.5 The Supplier reserves the right to amend the Specification of the Goods if required by any applicable statutory or regulatory requirements and to sub-contract any of its obligations at its sole discretion.
- 7.6 No amendments to the Order are accepted or binding on the Supplier unless they are accepted in writing by the Supplier's authorised representative.
- 7.7 Document Retention – The Supplier reserves the right to delete CAD data 30 days from final shipment of the Goods. Unless expressly agreed otherwise in writing, the Supplier will keep Customer records pertaining to the supply of the Goods only for as long as is required by the Supplier's internal document management policy.

8. DELIVERY

- 8.1 The acceptance confirmation e-mail will contain an estimated delivery date. Any dates quoted for delivery are approximate only, and the time of delivery is not of the essence. The Supplier shall not be liable for any delay in delivery of the Goods that is caused by a Force Majeure Event or the Customer's failure to provide the Supplier with adequate delivery instructions or any other instructions that are relevant to the supply of the Goods.
- 8.2 The Supplier shall ensure that:
- (a) each delivery of the Goods is accompanied by a delivery note which shows the date of the Order, all relevant Customer and Supplier reference numbers, the type and quantity of the Goods (including the code number of the Goods, where applicable), and special storage instructions (if any); and
 - (b) if the Supplier requires the Customer to return any packaging materials to the Supplier, that fact is clearly stated on the delivery note. The Customer shall make any such packaging materials available for collection at such times as the Supplier shall reasonably request. Returns of packaging materials shall be at the Supplier's expense.

- 8.3 The Supplier will only deliver to UK addresses. Unless otherwise agreed in writing, delivery shall be DAP in accordance with Incoterms 2010. Delivery of the Goods shall be completed on the Goods' arrival at the Delivery Location in accordance with the relevant Incoterm applicable to the Order.
- 8.4 If the Supplier fails to deliver the Goods, its liability shall be limited to the costs and expenses incurred by the Customer in obtaining replacement goods of similar description and quality in the cheapest market available, less the price of the Goods subject to the provisions of clause 13. The Supplier shall have no liability for any failure to deliver the Goods to the extent that such failure is caused by a Force Majeure Event or the Customer's failure to provide the Supplier with adequate delivery instructions or any other instructions that are relevant to the supply of the Goods.
- 8.5 If the Customer fails to take/accept delivery of the Goods within three Business Days of the Supplier notifying the Customer that the Goods are ready, then, except where such failure or delay is caused by a Force Majeure Event or the Supplier's failure to comply with its obligations under the Contract:
- (a) delivery of the Goods shall be deemed to have been completed at 9.00 am on the third Business Day after the day on which the Supplier notified the Customer that the Goods were ready; and
 - (b) the Supplier shall store the Goods until delivery takes place, and charge the Customer for all related costs and expenses (including insurance).
- 8.6 If 10 Business Days after the day on which the Supplier notified the Customer that the Goods were ready for delivery the Customer has not taken/accepted delivery of them, the Supplier may resell or otherwise dispose of part or all of the Goods and, after deducting reasonable storage and selling costs, account to the Customer for any excess over the price of the Goods or charge the Customer for any shortfall below the price of the Goods.

9. PRICE AND PAYMENT

- 9.1 The price of the Goods will be as quoted on our site at the time you submit your order. We take reasonable care to ensure that the price of the Goods is correct at the time when the relevant information was entered onto the system. However please see clause 9.2 for what happens if we discover an error in the price of the Goods you ordered.
- 9.2 It is always possible that, despite our reasonable efforts, the Goods that you order online may be incorrectly priced. If we discover an error in the price of the Goods you have ordered we will usually contact you within two working days to inform you of this error and we will give you the option of continuing to purchase the Goods at the correct price or cancelling your order. We will not process your order until we

have your instructions. If we are unable to contact you using the contact details you provided during the order process, we will treat the order as cancelled and notify you in writing. If we mistakenly accept and process your order where a pricing error is obvious and unmistakable and could reasonably have been recognised by you as a mispricing, we may cancel supply of the Goods and refund you any sums you have paid.

- 9.3 The price of the Goods is inclusive of the costs and charges of packaging, insurance and transport of the Goods, which shall be set out on the order page as part of the total price of the Goods. The price of the Goods is exclusive of amounts in respect of value added tax (VAT). The amount payable by the Customer in respect of VAT will be as set out on the webpage when completing payment for the Goods.
- 9.4 The Customer shall pay all amounts due under the Contract in full without any set-off, counterclaim, deduction or withholding (except for any deduction or withholding required by law). The Supplier may at any time, without limiting any other rights or remedies it may have, set off any amount owing to it by the Customer against any amount payable by the Supplier to the Customer.

10. HOW TO PAY

- 10.1 If you do not have a credit account with us:
- (a) you can only pay for Goods using a debit card or credit card; and
 - (b) Payment for the Goods and all applicable delivery charges is in advance at the time of placing the order.
- 10.2 If you do have a credit account with us:
- (a) You can select 'Pay by Invoice';
 - (b) the Supplier may invoice the Customer for the Goods on or at any time after the completion of delivery;
 - (c) the Customer shall pay the invoice in full and in cleared funds within 30 Calendar Days of the date of the invoice. Payment shall be made to the bank account nominated in writing by the Supplier. Time of payment is of the essence.
 - (d) If the Customer fails to make any payment due to the Supplier under the Contract by the due date for payment, then the Customer shall pay interest on the overdue amount at the rate of 8% per annum above Bank of England's base rate from time to time. Such interest shall accrue on a daily basis from the due date until actual payment of the overdue amount, whether before or after judgment. The Customer shall pay the interest together with the overdue amount.

11. QUALITY

11.1 The Supplier warrants that on delivery and for a period of 1 (one) calendar month (for selective laser sintering Goods) and 3 (three) calendar months (for direct metal laser sintering Goods) from the date of delivery (warranty period), the Goods shall:

- (a) conform in all material respects with the Specification in respect of its manufacture. Unless expressly agreed otherwise in writing:
 - (i) the Supplier will carry out a visual inspection on 100% of parts, and an XYZ measurement on a 10% batch sample, where possible;
 - (ii) the Supplier's standard manufacturing tolerances as stated on the applicable quotation for the Goods shall apply; and
- (b) be free from material defects in material and workmanship.

11.2 Subject to clause 11.3, if:

- (a) in the case of a defect which would have been apparent on a proper and careful inspection of the goods upon delivery within 5 Business Days from the date of delivery, or, in the case of a latent defect, within 5 Business Days of the latent defect having become apparent, the Customer gives notice in writing to the Supplier that some or all of the Goods do not comply with the warranty set out in clause 11.1;
- (b) the Customer complies with the Supplier's Returns Policy;
- (c) the Supplier is given a reasonable opportunity of examining such Goods in order to determine the validity of the warranty claim; and
- (d) the Customer (if asked to do so by the Supplier) returns such Goods to the Supplier's place of business at the Customer's cost (to be reimbursed if the warranty claim is valid),

the Supplier shall, at its option, repair or replace the defective Goods, or refund the price of the defective Goods in full. If the Customer fails to give notice or otherwise does not act in accordance with this clause, it shall be deemed to have accepted the Goods. For the avoidance of doubt all defective Goods in the event of a valid warranty claim remain the absolute property of the Supplier and, on request from the Supplier, shall be returned to the Supplier prior to delivery of the replacement Goods.

11.3 The Supplier shall not be liable for Goods' failure to comply with the warranty set out in clause 11.1 in any of the following events:

- (a) the Customer makes any further use of such Goods after giving notice in accordance with clause 11.2;
- (b) the defect arises because the Customer failed to follow the Supplier's oral or written instructions as to the storage, commissioning, installation, use and

maintenance of the Goods or (if there are none) good trade practice regarding the same;

- (c) the defect arises as a result of the Supplier following any drawing, design or Specification supplied by the Customer;
- (d) the Customer alters or repairs such Goods without the written consent of the Supplier;
- (e) the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal storage or working conditions;
- (f) the Customer does not take sufficient care (e.g with regard to packaging) when returning the Goods to the Supplier; or
- (g) the Goods differ from the Specification as a result of changes made to ensure they comply with applicable statutory or regulatory requirements.

11.4 Except as provided in this clause 11, the Supplier shall have no liability to the Customer in respect of the Goods' failure to comply with the warranty set out in clause 11.1.

11.5 The Supplier manufactures parts to the specification/design/drawing as provided by the Customer and has relied on the Customer's skills and expertise in designing parts and components which are fit for the intended end-use and purpose. Notwithstanding its obligation to meet the Specification as provided by the Customer, the Supplier shall bear no liability whatsoever to the fullest extent permissible in law in respect of fitness for purpose and/or any intended end-use of the Goods irrespective of whether the intended end-use is known to the Supplier. The Customer shall indemnify the Supplier against any and all liability, damage, loss or expenses (including any direct, indirect or consequential losses and all interest, penalties and legal and other reasonable professional costs and expenses) without limitation incurred by or imposed on it in connection with any claims, suits, actions, demands or judgements (including, but not limited to, actions in the form of tort, warranty or strict liability) arising out of or in connection with:

- (a) the Goods' fitness for purpose or suitability for intended end-use;
- (b) the acts or omissions of the Customer, its employees, agents or subcontractors; and / or
- (c) defective goods except to the extent that the defect in the goods is attributable to the breach in performance of this agreement by the Supplier.

This indemnity shall apply without limitation and shall survive termination, expiry or completion of the Order.

11.6 The terms implied by sections 13 to 15 of the Sale of Goods Act 1979 are, to the fullest extent permitted by law, excluded from the Contract.

11.7 These Terms shall apply to any repaired or replacement Goods supplied by the Supplier.

12. TITLE AND RISK

The title and risk in the Goods shall pass to the Customer on completion of delivery, provided that the Supplier has received payment in full.

13. LIMITATION OF LIABILITY

13.1 Nothing in these Terms shall limit or exclude the Supplier's liability for:

- (a) death or personal injury caused by its negligence, or the negligence of its employees, agents or subcontractors (as applicable);
- (b) fraud or fraudulent misrepresentation;
- (c) breach of the terms implied by section 12 of the Sale of Goods Act 1979;
- (d) defective products under the Consumer Protection Act 1987; or
- (e) any matter in respect of which it would be unlawful for the Supplier to exclude or restrict liability.

13.2 Subject to clause 13.1:

- (a) the Supplier shall under no circumstances whatever be liable to the Customer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit, or any indirect or consequential loss arising under or in connection with the Contract; and
- (b) the Supplier's total liability to the Customer in respect of all other losses arising under or in connection with the Contract, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall in no circumstances exceed 100% of the price of the Goods.

14. FORCE MAJEURE

14.1 Neither party shall be liable for any failure or delay in performing its obligations under the Contract to the extent that such failure or delay is caused by a Force Majeure Event. A Force Majeure Event means any event beyond a party's reasonable control, which by its nature could not have been foreseen, or, if it could have been foreseen, was unavoidable, including strikes, lock-outs or other industrial disputes (whether involving its own workforce or a third party's), failure of energy sources or transport network, acts of God, war, terrorism, riot, civil commotion, interference by civil or military authorities, national or international calamity, armed conflict, malicious damage, breakdown of plant or machinery, nuclear, chemical or biological contamination, sonic boom, explosions, collapse of building structures, fires, floods,

storms, earthquakes, loss at sea, epidemics or similar events, natural disasters or extreme adverse weather conditions, or default of suppliers or subcontractors.

15. PERSONAL DATA

15.1 You acknowledge that placing an Order will result in the Supplier processing data personal to you, such as your name and title, address, telephone number, contact details and other personal details. Please refer to our Privacy Policy for more information on how the Supplier will handle your personal data.

16. GENERAL

16.1 Assignment and other dealings

The Supplier may at any time assign, transfer, mortgage, charge, subcontract or deal in any other manner with all or any of its rights or obligations under the Contract. The Customer may not do so without the prior written consent of the Supplier.

16.2 Notices

- (a) Any notice or other communication given to a party under or in connection with the Contract shall be in writing, addressed to that party at its registered office (if it is a company) or its principal place of business (in any other case and shall be delivered personally, sent by pre-paid first class post or other next working day delivery service, commercial courier, fax or e-mail to enquiries@3t-am.com (evidenced by an email delivery receipt).
- (b) A notice or other communication shall be deemed to have been received: if delivered personally, when left at the address referred to in clause 16.2(a); if sent by pre-paid first class post or other next working day delivery service, on the second Business Day after posting; if delivered by commercial courier, on the date and at the time that the courier's delivery receipt is signed; or, if sent by fax or e-mail, one Business Day after transmission.
- (c) The provisions of this clause shall not apply to the service of any proceedings or other documents in any legal action.

16.3 **Severance.** If any provision or part-provision of the Contract is or becomes invalid, illegal or unenforceable, it shall be deemed modified to the minimum extent necessary to make it valid, legal and enforceable. If such modification is not possible, the relevant provision or part-provision shall be deemed deleted. Any modification to or deletion of a provision or part-provision under this clause shall not affect the validity and enforceability of the rest of the Contract. The parties shall negotiate in good faith to amend such provision so that, as amended, it is legal, valid and enforceable, and, to the greatest extent possible, achieves the intended commercial result of the original provision.

- 16.4 **Waiver.** A waiver of any right or remedy under the Contract or law is only effective if given in writing and shall not be deemed a waiver of any subsequent breach or default. No failure or delay by a party to exercise any right or remedy provided under the Contract or by law shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.
- 16.5 **Third party rights.** A person who is not a party to the Contract shall not have any rights to enforce its terms.
- 16.6 **Relationship.** We have no special relationship or fiduciary duty to you. No agency, partnership, joint venture or employment relationship is created as a result of these Terms and neither party has any authority of any kind to bind the other in any respect.
- 16.7 **Variation.** Except as set out in these Terms, no variation of the Contract, including the introduction of any additional terms and conditions, shall be effective unless it is in writing and signed by the Supplier.
- 16.8 **Confidentiality**
- (a) This clause applies subject to any non-disclosure or confidentiality agreement already existing between the parties. By placing an Order, the Customer consents under such confidentiality agreement to the disclosure of information to the Supplier's approved suppliers as required to fulfil the Contract.
 - (b) Each party undertakes that it shall not disclose to any person any Confidential Information belonging to the other party, except as permitted by clause 16.8 (c).
 - (c) Each party may disclose the other party's Confidential Information:
 - (i) to its employees, officers, agents, consultants or subcontractors (Representatives) who need to know this information for the purposes of carrying out the party's obligations under the Contract, provided that the disclosing party takes commercially reasonable steps to ensure that its Representatives comply with the confidentiality obligations contained in this clause 16 as though they were a party to the Contract;
 - (ii) to the extent the information has entered or enters into the public domain otherwise than through unauthorised disclosure; and
 - (iii) as may be required by law, a court of competent jurisdiction or any governmental or regulatory authority.
 - (d) Each party reserves all rights in its Confidential Information. No rights or obligations in respect of a party's Confidential Information other than those

expressly stated in these Terms are granted to the other party or to be implied from this agreement. In particular, no licence is hereby granted directly or indirectly under any patent, invention, discovery, copyright or other intellectual property right held, made, obtained or licensable by either party now or in the future.

- (e) The provisions of this clause will survive termination or completion of the Contract for a period of 5 years.

16.9 **Governing law & Jurisdiction.** The Contract, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with the law of England and Wales and the parties submit to the exclusive jurisdiction of the courts of England and Wales.

Supplementary term for Medical Related Parts Manufacture

17. TERMS AND CONDITIONS OF SALE AND ISO 13485

17.1 The Customer acknowledges and accepts that where it has been agreed that the Order will be processed by the Supplier in accordance with ISO 13485:2016 (Medical Devices), the following paragraphs of the ISO standard will not apply to the Order unless specifically agreed to by the Supplier:

- (a) 4.2.3 (a)(e)(f) – Medical Device File
- (b) 7.2.1 (a) regarding post-delivery activities only; (b); (c) (apart from non-product specific regulatory requirements such as requirements relating to the Supplier’s general production facility and process) and (d).
- (c) 7.3 Design and development
- (d) 7.5.3 Installation activities
- (e) 7.5.4 Servicing activities
- (f) 7.5.5 Particular requirements for sterile medical devices
- (g) 7.5.7 Particular requirements for validation of processes for sterilization and sterile Barrier systems