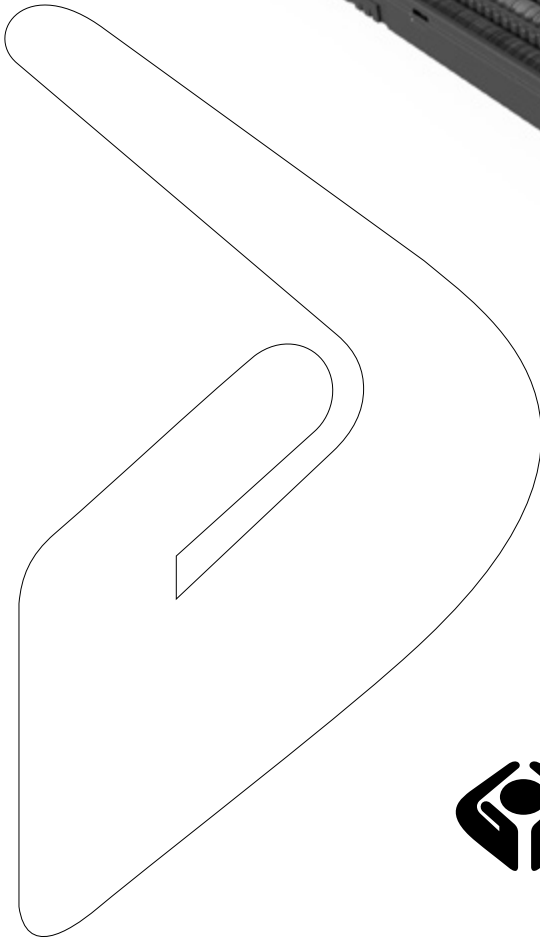


PRODUCT USAGE MANUAL



GII



Version: 1.2




CORE CASE[®]
SUSTAINABLE CORE BOXES


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Both your safety and third-party's are important. This manual and its associated product have many relevant safety-related messages. Attention to these messages:

 Standard symbol for safety-related messages. It warns us about situations that may pose risks to your life, injuries to you or third parties.

 **DANGEROUS** Risks related to personal or third party accidents, or severe damages, may occur should instructions not be followed right away.

 **WARNING** Risk of personal or third party accidents, or severe damages, may occur, should instructions not be followed.



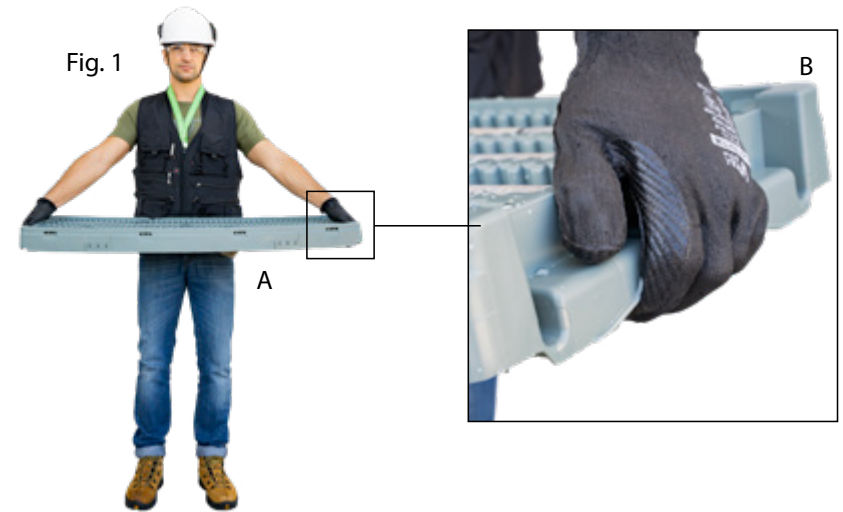
Cases are made in compliance with ISO 9001 quality standards.


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1 - MANUAL CASE USAGE AND TRANSPORT

Maximum care is required when moving and stowing plastic cases with drill cores, so as to avoid injuries to users and damages to products and lithological materials stored. Cases may be transported by a single person, but good ergonomics and occupational practices (maximum 23 kg/person) must be followed. In such case, case must be grabbed at its forepart and back, right at case mid-portion, so as to avoid case twisting even when loaded with drill cores (Fig. 1). Should there be excessive weight, product is recommended to be carried by two people, and they must grab it at its ends using both hands.



 **WARNING** All PPEs required for the activity must be worn, especially gloves and steel-toe boots.



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2 - VEHICLE TRANSPORTATION

For vehicle transportation (open bed or even closed bed), at least the last case on stack top should be closed with a lid, so as to avoid material loss during transportation (Fig. 2). Since this case model lid has an efficient closing system, tape or straps are at first not required for the case to be appropriately closed for this procedure. However, should they be used, care must be taken with excessive pressure on tapes or straps so as to avoid products are smashed or even broken during transportation. For such condition, using steel or wood angle brackets (FIG. 3) so that tape or strap pressure is uniformly distributed over cases to avoid potential damages. Side fitting systems (one case to the other) are advisable for improved stacking and transportation safety (Fig. 4) This way, a case stack will stabilize the other, which allows for vehicle transportation to be safer due to vibration cutdown during transportation.

Fig. 2



Fig. 3



Fig. 4



⚠ DANGEROUS

We do not recommend stacking the cases, when they are loaded, to a height much higher than the limit of the dump height of pickups and trucks. This proceeding is important to avoid the risk of falls and subsequent loss of samples/materials, as well as severe accidents with users.

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3 - STACKING AND FINAL STOWAGE

For case stacking, capacity recommended under item 15 of this manual must be followed. By safety convention, most companies recommend that stacks are not higher than 1.50 m (approximately 15 cases). Lids are recommended only for the last case on top of the stack, once cases are fit in a stable fashion one to the other during stacking. Side fitting systems (one case to the other) are advisable for improved stacking safety (Fig. 5). This way, a case stack will stabilize the other, which renders the procedure safer. However, due to required unstacking for routine procedures (description, sampling, audit, etc.), fitting all case stacks (one to the other) is not recommended, for unstacking will be harder when required. Thus, the ideal procedure is to FIT only some of the stacks, so that this contributes to locking and stabilizing a set of case stacks stored in the shed. The number of stacks to be fit together is at users' discretion. Correct stack unfitting procedure is by removing one case at a time from the stack top.

Fig. 5



⚠ WARNING

NEVER should cases fit between stacks be removed sideways. Should it be done, fitting system may be broken or the stack may even topple down, causing damages to products or sampled materials, as well as severe accidents to users.

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Floor where cases are stacked must be even and smooth so that product durability and stack stability are not compromised (Fig. 6). Cases should ideally be finally stored indoors, with no or very little sunlight and rainfall (FIG. 7).

Fig. 6



Fig. 7



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4 - CASE LOADING WITH DRILL CORES

For drill core placement, cases must be clean, free from other types of material that might contaminate samples, and water drainage holes must be free from any dirt obstructing them. Such obstruction may occur when drill cores are stored for a long time before usage.

WARNING

For previous case inspection procedure, PPEs must be worn, especially gloves and mask, to avoid risks of venomous animal bite and dust inhalation.



5 - Core shock placement and positioning

Core shocks must be placed in cases according to relevant information associated with drilling maneuvers. For Generation II products, core shocks are duly fit in the case by bevels (FIG. 8). Such system allows core shock locking, even when drill cores move in cases. (FIG. 9).

Fig. 8

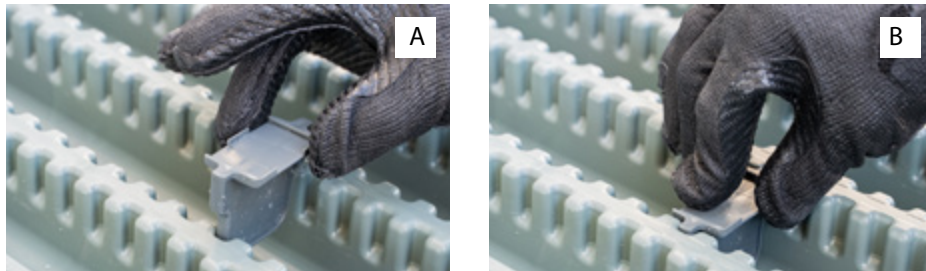
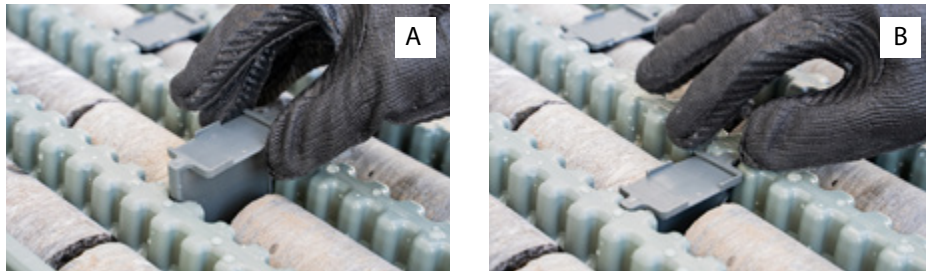


Fig. 9



Generation II core shocks also have protected and rougher to ensure data are preserved, either by applying permanent markers, adhesive tape or metal tag (FIG. 10).

Fig. 10



6 - METAL TAG PLACEMENT

In this product line, metal tags with borehole data are fit on case's upper part (Fig. 11), which makes the system more practical and safer for borehole information to be added. Dimensions: 14 x 4 cm.

FIG. 11



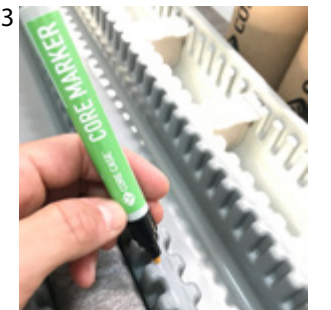
7 - BOREHOLE INFORMATION TO BE RECORDED ON CASES

For borehole information to be recorded on cases, permanent markers or marker pens (Fig. 12) should be used. Since this case model has wide partitions, borehole information can be recorded on top of partitions (FIG. 13). AllFlex® Core Marker The most efficient core marker, ensuring sharper and longer-lasting visibility.



FIG. 12

FIG. 13



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However, not all markers labelled as permanent are actually good quality ones, appropriate to write information on plastic cases. Due to the fact that case surface is smooth, information written with low-quality markers fades out, especially when cases are exposed to sunlight. Various types of industrial permanent markers and marker pens have been tested for activities with plastic core cases, and the conclusion reached is that AllFlex is the most efficient marker due to the use of high-quality ink and being easier to use than similar brands. Should erasing be needed, chemicals like thinner or solvent must be used. This marker brand is more expensive than conventional ones, however much longer-lasting when used on smooth surface plastic cases, while regular markers used on wooden cases, though cheaper, are damaged more easily due to the more aggressive application nature. Red-ink markers are not recommended, they last less. Moreover, core shed work team are recommended to avoid stowing cases in bench portions with long exposition to sunlight.

8 - HOLES FOR DRAINAGE OF WATER BUILT UP IN CASES

Innovative Generation II water drainage system has been developed with holes at front and side case ends (Fig. 14), aiming at eliminating any potential material contamination from one case to the other when stacked.

FIG. 14



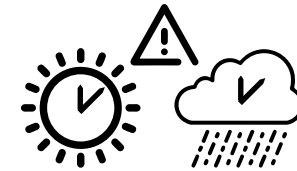
PRODUCT USAGE MANUAL **GII**

9 - CASE CLEAN-UP AND CHEMICALS

Plastic cases are resistant to core cleaning products (grease detergents, etc.) usually applied during drilling activities, and even to hydrochloric acid (HCl) commonly used by geologists during drill core description. However, care must be taken when using such substances regarding texts written on cases, for they may be wiped out or become hard to read.

10 - DURABILITY VS. USAGE

Plastic case durability is directly associated to transport and stowing process. For longer product durability, cases are recommended to be stacked on even floor, with stacks of 15 cases maximum, on racks with shelves designed for this purpose. In such case, product service life is undetermined. For vehicle transport activities (trucks, pickup trucks, etc.), cases must be duly stabilized to avoid excessive vibration, specially when loaded with drilling samples. Ropes, tapes and straps must be used with appropriate pressure not to smash/dent and/or break cases. Even if products have ultraviolet (UV) protection stabilizers, exposing plastic cases to weather (sunlight and rainfall) for a long period of time is not recommended.



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11 - POTENTIAL ISSUES, CAUSES AND SOLUTIONS

ISSUE	CAUSE	SOLUTIONS
Case is brittle.	- Product has been exposed to weather (rainfall, etc.) for too long; - Product is being subject to extremely low temperature (< 50°C) for a long period of time.	- Store product indoors, in a well ventilated area.
Case is too flexible.	- Product is being subject to extremely high temperatures (> 50°C) for a long period of time.	- Store product indoors, in a well ventilated area.
Case looks rough and easily scratchable.	- Product has been exposed to weather (sunlight, rainfall, etc.) for too long;	- Store product indoors, in a well ventilated area.
Case stack is rather unstable and steep.	- Floor is uneven and/or has irregular profile, jeopardizing correct product stacking.	- Stack product on even and smooth floor so that product durability and stack stability is not compromised.
Stack base case is breaking.	- Floor is uneven and/or has irregular profile, jeopardizing correct product stacking; - Excessive weight of material stored in stacked cases; - Excessive number of cases in stack.	- Stack product on even and smooth floor so that product durability and stack stability is not compromised; - Material load in cases must comply with capacity recommended under item 15 of this manual; - Case stacking must comply with capacity recommended under item 15 of this manual.
Case shows some localized breaks at base and product corners.	- Inappropriate use or care by users during stack handling, assembly and dismantling and/or transport.	- Avoid dragging product when there are elements obstructing appropriate sliding of one case over the other, e.g. rock/core edges and parts, poorly placed core shocks, etc.
Side case fitting system for stacking stabilization broken.	- Forced sideways case removal with side case fitting system is locked.	- Appropriately unfit stacks by removing one case at a time from stack top.

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12 - ENVIRONMENTAL MATTERS

Packaging

Core Case seeks to use as little packaging as practical. All is designed so that, when used, packaging is easily separated and, whenever practical, made of recyclable materials. Packaging (plastic wrap, plastic strap, and cardboard box) must be disposed of consciously, preferably to recyclers or appropriate recycling containers.

Product

This product has been made with 100% recycled raw material (polypropylene-PP). It can be recycled once more and/or reused for other activities. Thus, when disposing of this product and its associated accessories, preferably send it to plastic recycling companies.

Disposal

When disposing of this product, at the end of its service life, we recommend local existing legislation in force is complied with, aiming at best possible disposal.

13 - CONTACT CORE CASE

Should you have questions or issues related to the product or its accessories, contact Core Case Customer Service. Upon calling, please make sure you have full data and information on the product available. Visit our website www.corecase.com to access updated information on our customer service or call +55 51 3012-6531 (Brazil) or +1 844 333-2673 (North America).

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14 - WARRANTY

Your Core Case product is warranted against manufacturing defects for 12 months from Invoice issuance date, including:

- 3 months - legal warranty;
- 9 remaining months - special warranty, granted by Core Case. Warranty includes free replacement of products with proven manufacturing defects. Only Core Case professional team, or whoever appointed by Core Case, will be responsible for troubleshooting and product replacement. During warranty period, should defects identified be manufacturing defects, manufacturer holds itself obliged to replace products and/or provide free assistance to your product from the date Customer Service is contacted.

Legal and/or special warranty is automatically invalid should:

- product is not exclusively used for rotating diamond drill core transportation and storage (Generation I, Generation II, Adapt, and Petro Case products), laboratory sample slurry (Generation I, Generation II, and Petro Case products), side, channel and plug samples (Petro Case line cases), and reverse circulation drilling chip samples (Chip Case line cases);
- improper use, bad conservation, carelessness, aesthetical and/or functional changes occur;
- signs of product violation and/or tampering be identified. Legal and/or special warranty does not cover:
 - Damages to product arising from excessive load, as well as animal action (insects, rodents or other animals), or objects inside the product, foreign to product purpose of use;
 - Products or accessories that have been damaged due to falls brought about by the customer itself or third parties. Upon delivery, check for accurate Invoice information related to your purchase. Should you identify any conflicting item, do not accept delivery, pointing out the reason for refusal on the back of the Invoice, and contact the person responsible for sale or delivery;
 - Products with insignificant aesthetic defects (scratch, dent, or stain) that do not keep product from being appropriately used for intended purpose;
 - Drying or warping issues with proven cause due to the following factors:
 - Storage at location unprotected from weather;
 - Storage on uneven and irregular floor;
 - Storage at location close to intense heat source;
 - Exposure and/or contact with corrosive substances;
 - Application of inappropriate chemicals for cleaning, including use of dirty/rough materials or tools.

Special warranty does not cover:

- Products with defects that do not impact product functionality, e.g.,

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dented, scratched, cracked, stained parts, etc.;

- Product servicing off the limits of Core Case head office municipality, which may include technician's transport expenses, previously approved of by customer, as per mileage table informed by Core Case;
- Parts subject to natural wear under normal usage.

General remarks:

Core Case does not authorize any person or entity to assume, on its behalf, any other responsibility associated with product warranty other than the ones explained herein.

Core Case reserves the right to change general, technical, and aesthetic features of its products, without previous notice. This Warranty is valid for products sold and installed within Brazilian territory. For your safety, keep User's Manual with this Warranty and Invoice at safe and easy-to-access location.

ATTENTION: To be able to make a warranty claim, make sure you keep product Invoice and Warranty at hand. Core Case professional will have to be shown these documents when warranty is claimed.

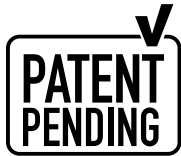
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15 - GENERAL DATA

Raw material: 100% recycled polypropylene (PP);
Post-use recycling: 5 times minimum;
Manufactured by plastic injection molding;
Chemically inert material, no risk of contamination or chemical reactions with samples;
Maximum load: 50 kg / 110.23 lbs (per case);
Maximum stacking: 500 kg / 1102.31 lbs;
Length: 109 cm / 42.91";
Width: 35 cm / 13.78";
Height: 11 cm / 4.33" (PQ), 10 cm / 3.94" (HWL), 9 cm / 3.54" (HQ), 7.5 cm / 2.95" (NQ), and 6.3 cm / 2.48" (BQ);
Storage capacity: 2 m / 6.56 ft (PQ), 3 m / 9.84 ft (HWL), 3 m / 9.84 ft (HQ), 4 m / 13.12 ft (NQ), and 5 m / 16.40 ft (BQ);
Weight: 2.5 kg / 5.51 lbs (PQ), 2,6 kg / 5.73 lbs (HWL), 2.4 kg / 5.29 lbs (HQ), 2.4 kg / 5.29 lbs (NQ), and 2.1 kg / 4.63 lbs (BQ);

(* Q[®] is a trademark of Boart Longyear. Using 'Q' in our codes is only to indicate compatibility of Core Case products with 'Q' sizes of Boart Longyear Wireline.



Core Case product innovations are protected by patents and industrial design registration both in Brazil and abroad.



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