

GSI GROUP INC
Form S-3
March 14, 2012
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As filed with the Securities and Exchange Commission on March 14, 2012

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

GSI GROUP INC.

(Exact name of registrant as specified in its charter)

New Brunswick, Canada
(State or Other Jurisdiction of Incorporation or Organization)

125 Middlesex Turnpike

Bedford, Massachusetts 01730

(781) 266-5700

98-0110412
(I.R.S. Employer Identification No.)

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

John A. Roush, Chief Executive Officer

GSI Group Inc.

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125 Middlesex Turnpike

Bedford, Massachusetts 01730

(781) 266-5700

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent For Service)

Copy to:

James C. Gorton, Esq.

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Latham & Watkins LLP

885 Third Avenue

New York, New York 10022

(212) 906-1200

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer
Non-accelerated filer (do not check if a smaller reporting company) Smaller reporting company

CALCULATION OF REGISTRATION FEE

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| Title of each class of securities to be registered | Amount to be registered | Proposed maximum offering price per unit | Proposed maximum aggregate offering price | Amount of registration fee |
|--|-------------------------|--|---|----------------------------|
| Primary Offering: ⁽¹⁾⁽²⁾ | | | | |
| Debt Securities | | | | |
| Common Shares, no par value | | | | |
| Total for Primary Offering | | | \$200,000,000 ⁽²⁾ | \$22,920 ⁽³⁾ |
| Secondary Offering: | | | | |
| Common Shares, no par value | 2,800,000 | \$11.38 | \$31,864,000 | \$3,651.61 ⁽⁴⁾ |
| Total | | | \$231,864,000 | \$26,571.61 |

- (1) With respect to the primary offering, the fee table does not specify by each class of securities to be registered hereunder as to the amount to be registered, proposed maximum offering price per unit, and proposed maximum aggregate offering price pursuant to General Instruction II(D) to Form S-3 under the Securities Act of 1933, as amended.
- (2) With respect to the primary offering, this registration statement covers up to \$200,000,000 of an indeterminate principal amount or number of securities of each identified class of securities, including securities that may be issued upon exercise, conversion or exchange of any securities registered hereunder that provide for exercise, conversion or exchange. If any debt securities are issued at an original issue discount, then the offering price shall be in such greater principal amount as shall result in an aggregate initial offering price not to exceed \$200,000,000.
- (3) The registration fee has been calculated in accordance with Rule 457(o) under the Securities Act of 1933, as amended.
- (4) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) of the Securities Act, based upon the average of the high and low prices of the common shares reported on the NASDAQ Global Select Market on March 7, 2012.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PROSPECTUS

Subject to completion, dated March 14, 2012.

GSI Group Inc.

\$200,000,000

Debt Securities

Common Shares

We may offer, from time to time, to sell any combination of debt securities and common shares described in this prospectus in one or more offerings. The aggregate initial offering price of the securities that we offer under this prospectus will not exceed \$200,000,000. This prospectus provides a general description of the securities we may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and the applicable prospectus supplement carefully before you invest in any securities. This prospectus may not be used by us to sell securities unless accompanied by a prospectus supplement.

We may offer securities through underwriting syndicates managed or co-managed by one or more underwriters or dealers, through agents or directly to purchasers. The prospectus supplement for each offering of securities will describe in detail the plan of distribution for that offering. For general information about the distribution of securities, please see [Plan of Distribution](#) in this prospectus.

In addition, the selling shareholder named in this prospectus may offer, from time to time, up to 2,800,000 of our common shares. We will not receive any of the proceeds from the sale of our common shares by the selling shareholder. To the extent that any selling shareholder resells any common shares, the selling shareholder may be required to provide you with this prospectus and a prospectus supplement containing specific information about the offering.

The selling shareholder may offer securities through underwriting syndicates managed or co-managed by one or more underwriters or dealers, through agents or directly to purchasers. For a description of the plan of distribution of the common shares by the selling shareholder, please see [Plan of Distribution](#) in this prospectus. If required, the prospectus supplement for each offering of securities by the selling shareholder will describe in detail the plan of distribution for that offering.

Our common shares are listed for trading on the NASDAQ Global Select Market under the symbol [GSIG](#). On March 13, 2012, the closing price of our common shares on the NASDAQ Global Select Market was \$11.51 per share.

Investing in our securities involves risks. See Risk Factors on page 2 of this prospectus, in the documents incorporated into this prospectus and in any applicable prospectus supplement.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is _____, 2012.

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ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under this shelf registration process, we may offer to sell any combination of the securities described in this prospectus in one or more offerings up to a total aggregate dollar amount of \$200,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. To the extent that any statement that we make in a prospectus supplement is inconsistent with statements made in this prospectus, the statements made in this prospectus will be deemed modified or superseded by those made in the prospectus supplement. We may only use this prospectus to sell the securities if it is accompanied by a prospectus supplement.

This prospectus also may be used by the selling shareholder identified in this prospectus to sell up to 2,800,000 of our common shares. We will not receive any proceeds from the sale of any of our common shares offered under this prospectus by the selling shareholder. To the extent that any selling shareholder resells any common shares, the selling shareholder may be required to provide you with this prospectus and a prospectus supplement containing specific information about the offering.

You should read both this prospectus and any prospectus supplement, including all documents incorporated herein or therein by reference, together with additional information described under **Where You Can Find More Information**.

We have not authorized any dealer, salesperson or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus or any accompanying prospectus supplement. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any accompanying prospectus supplement. This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus and any accompanying prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date. Our business, financial condition, results of operations and prospects may have changed since those dates.

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WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a web site, <http://www.sec.gov>, which contains reports, proxy and information statements and other information regarding registrants, including us, that file electronically with the SEC. You may read and copy any document we file with the SEC at its Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. You may also obtain these materials from us at no cost by directing a written or oral request to us at GSI Group Inc., 125 Middlesex Turnpike, Bedford, Massachusetts 01730, Attn: Investor Relations, or by calling our Investor Relations Department at (781) 266-5137, or at our website at www.gsig.com. The information contained on or accessible through our website is not incorporated by reference into this prospectus or any prospectus supplement.

The SEC allows us to incorporate by reference certain information we file with the SEC, which means that we can disclose important information to you by referring to the other information we have filed with the SEC. The information that we incorporate by reference is considered a part of this prospectus and information that we file later with the SEC will automatically update and supersede the information contained in this prospectus. We incorporate by reference the following documents we filed with the SEC pursuant to Section 13 of the Securities Exchange Act of 1934, as amended (the Exchange Act):

Annual Report on Form 10-K for the year ended December 31, 2011;

Current Report on Form 8-K filed on March 2, 2012; and

the description of our common shares contained in Form 8-A filed on February 10, 2011.

Notwithstanding the foregoing, unless specifically stated to the contrary, none of the information that we disclose under Items 2.02, 7.01 or 9.01 of any Current Report on Form 8-K that we may from time to time furnish to the SEC will be incorporated by reference into, or otherwise included in, this prospectus or any prospectus supplement.

We are also incorporating by reference additional documents that we may file with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus and the termination of this offering. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as Proxy Statements.

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DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference in this prospectus or any prospectus supplement contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Such forward-looking statements are subject to certain risks and uncertainties, and typically can be identified by the use of words such as may, expect, intend, could, estimate, anticipate, forecast, plan, believe and similar terms. Although we believe that our expectations are reasonable, give no assurance that these expectations will prove to have been correct, and actual results may vary materially. Factors that could cause actual results to differ materially from those contemplated above include, among others:

economic and political conditions and the effects of these conditions on our customers' businesses and level of business activity;

our significant dependence upon our customers' capital expenditures, which are subject to cyclical market fluctuations;

our dependence upon our ability to respond to fluctuations in product demand;

our ability to continually innovate;

delays in our delivery of new products;

our reliance upon third party distribution channels subject to credit, business concentration and business failure risks beyond our control;

fluctuations in our quarterly results, and our failure to meet or exceed the expectations of securities analysts or investors;

customer order timing and other similar factors beyond our control;

disruptions in, or breaches in security of, our information technology systems;

changes in interest rates, credit ratings or foreign currency exchange rates;

risk associated with our operations in foreign countries;

our increased use of outsourcing in foreign countries;

our failure to comply with local import and export regulations in the jurisdictions in which we operate;

our history of operating losses and our ability to sustain our profitability;

our exposure to the credit risk of some of our customers and in weakened markets;

violations of our intellectual property rights and our ability to protect our intellectual property against infringement by third parties;

risk of losing our competitive advantage;

our ability to make acquisitions or divestitures that provide business benefits;

our failure to successfully integrate future acquisitions into our business;

our ability to retain key personnel;

our restructuring and realignment activities and disruptions to our operations as a result of consolidation of our operations;

product defects or problems integrating our products with other vendors' products;

disruptions in the supply of or defects in raw materials, certain key components or other goods from our suppliers;

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production difficulties and product delivery delays or disruptions;

changes in governmental regulation of our business or products;

our failure to implement new information technology systems and software successfully;

our failure to realize the full value of our intangible assets;

any requirement to make additional tax payments and/or recalculate certain of our tax attributes depending on the resolution of the complaint we filed against the U.S. government pursuant to Bankruptcy Code Section 505;

our ability to utilize our net operating loss carryforwards and other tax attributes;

fluctuations in our effective tax rates and audit of our estimates of tax liabilities;

being subject to U.S. federal income taxation even though we are a non-U.S. corporation;

being subject to the Alternative Minimum Tax for U.S. federal income tax purposes;

any need for additional capital to adequately respond to business challenges or opportunities and repay or refinance our existing indebtedness, which may not be available on acceptable terms or at all;

volatility in the market for our common shares;

our dependence on significant cash flow to service our indebtedness and fund our operations;

our ability to access cash and other assets of our subsidiaries;

the influence over our business of several significant shareholders;

provisions of our articles of incorporation, which may delay or prevent a change in control;

our significant existing indebtedness and restrictions in our new senior secured credit agreement that may limit our ability to engage in certain activities;

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our intention not to pay dividends in the near future; and

our failure to maintain appropriate internal controls in the future.

Additional factors which may cause actual results to differ materially from current expectations include, but are not limited to, those set forth in the section entitled "Business" in our Annual Report on Form 10-K for the year ended December 31, 2011, the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the section titled "Risk Factors" in each of this prospectus, any prospectus supplement and in our Annual Report on Form 10-K for the year ended December 31, 2011. Please consider our forward-looking statements in light of those risks as you read this prospectus and any prospectus supplement.

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ABOUT GSI GROUP INC.

GSI Group Inc. and its subsidiaries (collectively referred to as the Company, we, us, or ours unless the context requires otherwise) design, develop, manufacture and sell laser-based solutions (consisting of lasers and laser-based systems), laser scanning devices, and precision motion and optical control technologies. Our technology is incorporated into customer products or manufacturing processes for a wide range of applications in a variety of markets, including: electronics, industrial, medical, and scientific. Our products enable customers to make advances in materials and processing technology and to meet extremely precise manufacturing specifications.

Our strategy is to drive sustainable, profitable growth through short-term and long-term initiatives, including:

strengthening our strategic position in scanning solutions, fiber lasers, and medical components through continual investment in differentiated new products and solutions;

expanding our market access and reach, particularly in higher growth, emerging regions through investment in internal sales channels as well as external channel partners;

broadening our product and service offerings through the acquisition of innovative and complementary technologies and solutions;

streamlining our existing operations through site consolidations and strategic divestitures and expanding our business through strategic acquisitions;

expanding operating margins by establishing a continuous improvement culture through formalized productivity programs and initiatives; and

attracting, retaining, and developing talented and motivated employees.

GSI Group Inc. was founded and initially incorporated in Massachusetts in 1968 as General Scanning, Inc. (General Scanning). General Scanning developed, manufactured and sold components and subsystems used for high-speed micro positioning of laser beams. In 1999, General Scanning merged its business with Lumonics Inc., a Canadian company that developed, manufactured and sold laser-based, advanced manufacturing systems for electronics, semiconductor, and general industrial applications. The post-merger entity, GSI Lumonics Inc., continued under the laws of the Province of New Brunswick, Canada. In 2005, we changed our name to GSI Group Inc. In August 2008, we acquired Excel Technology, Inc., a designer, manufacturer and marketer of photonics-based solutions consisting of lasers, laser-based systems, precision motion devices and electro-optical components primarily used in industrial and scientific applications.

Our principal executive offices are located at 125 Middlesex Turnpike, Bedford, Massachusetts 01730, and our telephone number is (781) 266-5700. Our website address is <http://www.gsig.com>. The information on, or accessible through, our website is not part of this prospectus.

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RISK FACTORS

Investing in our securities involves risks. Prior to making a decision about investing in our securities, you should carefully consider the information contained or incorporated by reference in this prospectus or in any accompanying prospectus supplement, including, without limitation, the risks described in our Annual Report on Form 10-K for the year ended December 31, 2011, which is incorporated herein by reference, the risk factors described under the caption "Risk Factors" in any applicable prospectus supplement and any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act. Each of these risk factors could have a material adverse effect on our business, results of operations, financial position or cash flows, which may result in the loss of all or a part of your investment. Please read "Where You Can Find More Information" and "Disclosure Regarding Forward-Looking Statements" included elsewhere in this prospectus. Please note that additional risks not presently known to us, or that we currently deem immaterial, may also impair our business and operations.

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USE OF PROCEEDS

Unless we indicate otherwise in the applicable prospectus supplement, we intend to use the net proceeds of the securities offered by us pursuant to this prospectus to acquire or invest in complementary businesses, technologies, products or intellectual property. We may also use the net proceeds of the securities offered by us pursuant to this prospectus for general corporate purposes, which may include the repayment or refinancing of outstanding indebtedness, capital expenditures and working capital. When a particular series of securities is offered, a prospectus supplement related to that offering will set forth our intended use of the net proceeds received from the sale of those securities.

The selling shareholder will receive all of the net proceeds from the sale of our common shares offered by it pursuant to this prospectus, and we will not receive any of the proceeds from the sale of such common shares.

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The following table sets forth our ratios of earnings to fixed charges for the periods shown.

| | Year Ended December 31, | | | | |
|---|-------------------------|------|------|------|-------|
| | 2011 | 2010 | 2009 | 2008 | 2007 |
| Ratio of Earnings to Fixed Charges ⁽¹⁾ | 3.2x | 1.4x | | | 13.6x |

- (1) The ratio of fixed charges is computed by dividing earnings by fixed charges. For the purpose of computing this ratio, earnings consist of pretax income (loss) from continuing operations before adjustments for income from an equity method investment and income attributable to a noncontrolling interest, plus fixed charges. Fixed charges consist of interest expense (which includes interest on outstanding debt obligations, amortization of debt discounts attributable to warrants, amortization of deferred financing fees, and losses on extinguishment of debt attributable to the write-offs of unamortized deferred financing fees at the time of extinguishment) and an estimate of interest within rental expense. Earnings were insufficient to cover fixed charges for the years ended December 31, 2009 and 2008 by approximately \$43.0 million and \$239.9 million, respectively.

Table of Contents**SELLING SHAREHOLDERS**

The selling shareholder may sell a total of up to 2,800,000 common shares under this prospectus.

Under a registration rights agreement dated July 23, 2010, the selling shareholder has a right to twice demand the registration of its registrable securities on a registration statement, subject to the limitations contained in the registration rights agreement. The registration may be a shelf registration, filed with the SEC on an underwritten or non-underwritten basis. In addition, the selling shareholder has unlimited piggyback registration rights.

The table below sets forth information regarding the beneficial ownership of our common shares by the selling shareholder. The information regarding the selling shareholder's beneficial ownership after the sales made pursuant to this prospectus assumes that all of the common shares subject to sale pursuant to this prospectus will have been sold. The selling shareholder has provided the information set forth below relating to the number of our common shares such shareholder currently owns. The common shares subject to sale by the selling shareholder pursuant to this prospectus may be offered from time to time, in whole or in part, by the selling shareholder (and its nominees and successors), donees, transferees or other successors-in-interest.

| Selling Shareholder | Number of Common Shares Owned Before Any Sale | Number of Common Shares Subject to Sale Pursuant to this Prospectus | Number of Common Shares Owned After Sale of All Shares Subject to Sale Pursuant to this Prospectus* | Percentage of Common Shares Owned After Sale of All Shares Subject to Sale Pursuant To this Prospectus* |
|------------------------------------|--|--|--|--|
| Liberty Harbor Master Fund I, L.P. | 2,800,000 ⁽¹⁾ | 2,800,000 | | |

* Assumes that the selling shareholder will sell all of its common shares subject to sale pursuant to this prospectus. There is no assurance that the selling shareholder will sell all or any of its common shares.

- (1) Goldman Sachs Asset Management, L.P. (GSAM), a wholly owned subsidiary of The Goldman Sachs Group, Inc., is the investment manager of Liberty Harbor Master Fund I, L.P. (Liberty Harbor). An affiliate of The Goldman Sachs Group, Inc. is the general partner of Liberty Harbor. GSAM exercises voting and dispositive power with respect to the common shares subject to sale owned by Liberty Harbor. The Goldman Sachs Group, Inc. is a publicly registered company.

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DESCRIPTION OF COMMON SHARES

General

We have authority to issue an unlimited number of common shares, no par value. As of February 29, 2012, 33,515,041 common shares were issued and outstanding. As of February 29, 2012, we had an aggregate of 712,641 common shares reserved for issuance upon vesting of restricted stock unit awards granted under our 2010 Incentive Award Plan, as amended, or our Amended 2010 Plan, 169,864 common shares reserved for issuance upon settlement of deferred stock units granted to our directors pursuant either to stand-alone award agreements that are independent from an equity plan or the Amended 2010 Plan, 6,536 common shares reserved for issuance upon the vesting of restricted stock awards granted under our prior equity plans that were cancelled upon our emergence from bankruptcy on July 23, 2010, and 1,944,168 common shares reserved for issuance pursuant to future grants under our Amended 2010 Plan.

Terms

Each outstanding common share is entitled to one vote at all meetings of our shareholders, to participate ratably in any dividends which may be declared by the board of directors and, in the event of liquidation, dissolution or winding-up or other distribution of our assets or property, to a pro rata share of our assets after payment of all our liabilities and obligations. We have never declared or paid cash dividends on our common shares. We currently intend to retain any current and future earnings to finance the growth and development of our business and, therefore, do not anticipate paying any cash dividends in the foreseeable future.

Shareholders have cumulative voting rights in the election of directors. Cumulative voting rights permit each shareholder entitled to vote at a meeting of shareholders called for the election of directors to cast a number of votes equal to the number of shares held by the shareholder multiplied by the number of directors to be elected. The shareholder is entitled to cast all such votes in favor of one candidate for director or distribute them among the candidates in any manner.

The common shares are not liable to any calls or assessments and are not convertible into any other securities. There are no redemption or sinking fund provisions applicable to the common shares, and there are no preemptive rights held by holders of the common shares.

All outstanding common shares are fully paid and non-assessable, and common shares offered pursuant to this prospectus will, when issued, be fully paid and non-assessable.

Anti-Takeover Considerations

Our Articles contain provisions that may enable our board of directors to resist a change in control of our company. These provisions include:

the ability to issue an unlimited number of common shares; and

a limitation that stipulates that only holders of not less than 10 percent of the issued and outstanding shares of the Company carrying the right to vote at a meeting of shareholders are authorized to call a special meeting of shareholders.

These anti-takeover defenses could discourage, delay or prevent a transaction involving a change in control of our company. These provisions could also discourage proxy contests and make it more difficult for shareholders to elect directors of their choosing or cause us to take other corporate actions that shareholders desire.

Canadian Law Matters

There is no limitation imposed by Canadian law or by our Articles on the right of a non-resident to hold or vote common shares, other than as provided in the Investment Canada Act (the "ICA"). Unless a transaction falls

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within an available exemption, the ICA requires a non-Canadian making an investment which would result in the acquisition of control of a Canadian business or an investment to establish a new Canadian business, to identify, notify, or (if the value of the assets of the target Canadian business exceed a certain monetary threshold, or if the transaction is considered to be an investment that could be injurious to Canadian national security) file an application for review with the Investment Review Division of Industry Canada (IRD).

The notification procedure involves a brief statement of information about the investment on a prescribed form which is required to be filed with the IRD by the investor at any time up to 30 days following implementation of the investment. It is intended that investments requiring only notification will proceed without government intervention unless the investment is in a specific type of business activity related to Canada's cultural heritage and national identity.

If an investment is reviewable under the ICA, an application for review in the form prescribed is normally required to be filed with the IRD prior to the investment taking place and the investment may not be implemented until the review has been completed and the Minister of Industry (Minister) (the Minister responsible for Investment Canada) is satisfied that the investment is likely to be of net benefit to Canada (and, if applicable, is satisfied that the investment would not be injurious to Canadian national security). The Minister has up to 75 days to make this determination, though this period can be extended by agreement between the IRD and the investor (a national security review can take up to 130 days). If the Minister is not satisfied that the investment is likely to be of net benefit to Canada, the non-Canadian must not implement the investment or, if the investment has been implemented, may be required to divest himself of control of the business that is the subject of the investment. If the Governor in Council considers that it is advisable to protect national security, she may prohibit the investment, authorize it to proceed on conditions, or require divestiture.

Canada has no system of exchange controls. There are no Canadian restrictions on the repatriation of capital or earnings of a Canadian public company to non-resident investors. There are no laws in Canada or exchange restrictions affecting the remittance of dividends, profits, interest, royalties or other payments to non-resident holders of Common Shares, except as described under Canadian Taxation Matters .

Canadian Taxation Matters

The following summary is based upon the current provisions of the *Income Tax Act* (Canada) (the Tax Act), the current provisions of the regulations promulgated thereunder (the Regulations) and the current provisions of the Canada-United States Tax Convention (the Treaty), as at the date hereof and counsel's understanding of the current administrative practices of the Canada Revenue Agency (the CRA). This summary takes into account all specific proposals to amend the Tax Act and the Regulations that have been publicly announced by, or on behalf of, the Minister of Finance (Canada) prior to the date of this registration statement on Form S-3 (the Tax Proposals), but does not otherwise take into account or anticipate any changes in law, whether by judicial, governmental or legislative decision or action, or changes in administrative practices of the CRA. No assurances can be given that the Tax Proposals will be enacted as proposed, if at all. This summary does not take into account the tax legislation of any province or territory of Canada or any non-Canadian jurisdiction. Provisions of provincial income tax legislation vary from province to province in Canada and in some cases differ from federal income tax legislation.

The Tax Act contains certain provisions relating to securities held by certain financial institutions (the mark-to-market rules). This summary does not take into account the mark-to-market rules and investors that are financial institutions for the purposes of those rules should consult their own tax advisors. This summary is not applicable to investors an interest in which would be a tax shelter investment , as defined in the Tax Act, and any such investor should consult their own tax advisors.

The following summary is of a general nature only and is not intended to be, nor should it be construed to be, legal or tax advice to any particular investor. This summary is not exhaustive of all

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Canadian federal income tax considerations. Accordingly, investors should consult their own tax advisors with respect to their particular circumstances, including the application and effect of the income and other taxes of any country, province, territory, state or local tax authority.

The following summary is generally applicable to an investor who, at all relevant times, for purposes of the Tax Act and any applicable income tax treaty or convention, is neither resident nor deemed to be resident in Canada, is not affiliated with the Company for the purposes of the Tax Act, deals at arm's length with the Company for the purposes of the Tax Act, holds common shares as capital property and does not use or hold, and is not deemed to use or hold common shares in connection with carrying on business in Canada (a non-resident shareholder). Special rules, which are not discussed in this summary, may apply to a non-resident shareholder that is an insurer that carries on an insurance business in Canada and elsewhere.

Dividends on Common Shares

Generally, dividends (including stock dividends) paid or credited (including amounts on account of or in lieu of dividends) by Canadian corporations to non-resident shareholders are subject to a withholding tax of 25 percent. However, the Treaty provides for a 15 percent withholding tax on dividends paid to all individuals and corporate residents of the United States that qualify for benefits under the Treaty. Dividends paid to any non-resident company that qualifies for benefits under the Treaty and that beneficially owns at least 10 percent of the voting stock of the payer company are subject to withholding tax at 5 percent.

Dividends (including stock dividends) paid or credited to a holder that is a United States tax-exempt organization, as described in Article XXI of the Treaty, and is entitled to the benefits of Article XXI(2) of the Treaty will not have to pay any Canadian withholding tax in respect of the amount of the dividend.

Disposition of Common Shares

A non-resident shareholder will not be subject to tax under the Tax Act on any capital gain realized on a disposition of a Common Share unless the common shares constitute taxable Canadian property to the non-resident shareholder. Generally, common shares will not constitute taxable Canadian property to a non-resident shareholder at a particular time provided that (a) the common shares are listed on a designated stock exchange at that time, (b) the non-resident shareholder, persons with whom the non-resident shareholder does not deal at arm's length, or the non-resident shareholder together with persons with whom the non-resident shareholder does not deal at arm's length, have not owned 25% or more of the issued shares of any of the classes (or of any series within a class) of the Company at any time during the 60-month period that ends at that time, and (c) less than 50% of the fair market value of the share is derived, directly or indirectly, from one or any combination of real or immovable property in Canada, Canadian resource properties, timber resource properties or options in respect of, or interests or rights in, such properties. Common shares may also be taxable Canadian property in certain other circumstances, including where the non-resident shareholder elected to have them treated as taxable Canadian property upon ceasing to be resident in Canada. Notwithstanding the foregoing, in certain circumstances set out in the Tax Act, common shares could be deemed taxable Canadian property. Non-resident shareholders should consult their own tax advisors to determine whether the common shares will constitute taxable Canadian property in their particular circumstances.

Even if the common shares are taxable Canadian property to a non-resident shareholder, a taxable capital gain or an allowable capital loss resulting from the disposition of the shares will not be included in computing the non-resident shareholder's income for the purposes of the Tax Act if the common shares constitute treaty-protected property. Common shares owned by a non-resident shareholder will generally be treaty-protected property if the gain from the disposition of such property would, because of an applicable income tax treaty or convention to which Canada is a signatory, be exempt from tax under the Tax Act. Non-resident shareholders should consult their own tax advisors to determine whether the common shares constitute treaty-protected property in their particular circumstances.

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Under the Tax Act, the disposition of a common share by a holder may occur in a number of circumstances including on a sale or gift of the common share or upon the death of the holder. There are no Canadian federal estate or gift taxes on the purchase or ownership of the common shares.

All non-resident shareholders who dispose of taxable Canadian property are required to file a Canadian tax return reporting their gain or loss on the disposition and, subject to an applicable tax treaty exemption, pay the Canadian federal tax due on the disposition.

All non-resident shareholders who dispose of taxable Canadian property are also required to obtain an advance clearance certificate in respect of their disposition under section 116 of the Tax Act (the Section 116 Certificate). The purchaser of the common shares is obligated to withhold 25% of the gross proceeds on the acquisition of the common shares from a non-resident shareholder except to the extent of the certificate limit on the Section 116 Certificate. A Section 116 Certificate is required even where the gain is exempt from Canadian income tax under a provision of an income tax treaty with Canada, such as the Treaty. If the non-resident shareholder does not provide a Section 116 Certificate to the purchaser, then the purchaser will be required to withhold and remit to the CRA 25% of the proceeds on account of the non-resident shareholder's tax obligation, on or before the end of the month following the date of the sale. The non-resident shareholder may then file a Canadian tax return to obtain a refund of excess withholding tax, if any.

Transfer Agent

The registrar and transfer agent for our common shares is Computershare Investor Services.

Listing

Our common shares are listed on The NASDAQ Global Select Market under the symbol GSIG.

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DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes certain general terms and provisions of the debt securities that we may offer under this prospectus. When we offer to sell a particular series of debt securities, we will describe the specific terms of the series in a supplement to this prospectus. We will also indicate in the prospectus supplement the extent to which the general terms and provisions described in this prospectus apply to a particular series of debt securities.

We may issue debt securities either separately, or together with, or upon the conversion or exercise of or in exchange for, other securities described in this prospectus. Debt securities may be our senior, senior subordinated or subordinated obligations and, unless otherwise specified in a supplement to this prospectus, the debt securities will be our direct, unsecured obligations and may be issued in one or more series.

The debt securities will be issued under an indenture between us and a trustee to be identified in the applicable prospectus supplement. We have summarized select portions of the indenture below. The summary is not complete. The form of the indenture has been filed as an exhibit to the registration statement of which this prospectus forms a part and you should read the indenture for provisions that may be important to you. In the summary below, we have included references to the section numbers of the indenture so that you can easily locate these provisions. Capitalized terms used in the summary and not defined herein have the meanings specified in the indenture.

As used in this section only, GSI Group, we, our or us refer to GSI Group Inc. excluding our subsidiaries, unless expressly stated or the context otherwise requires.

General

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors and set forth or determined in the manner provided in a resolution of our board of directors, in an officer's certificate or by a supplemental indenture. (Section 2.2) The particular terms of each series of debt securities will be described in a prospectus supplement relating to such series (including any pricing supplement or term sheet).

We can issue an unlimited amount of debt securities under the indenture that may be in one or more series with the same or various maturities, at par, at a premium, or at a discount. (Section 2.1) We will set forth in a prospectus supplement (including any pricing supplement or term sheet) relating to any series of debt securities being offered, the aggregate principal amount and the following terms of the debt securities, if applicable:

the title and ranking of the debt securities (including the terms of any subordination provisions);

the price or prices (expressed as a percentage of the principal amount) at which we will sell the debt securities;

any limit on the aggregate principal amount of the debt securities;

the date or dates on which the principal of the debt securities of the series is payable;

the rate or rates (which may be fixed or variable) per annum or the method used to determine the rate or rates (including any commodity, commodity index, stock exchange index or financial index) at which the debt securities will bear interest, the date or dates from which interest will accrue, the date or dates on which interest will commence and be payable and any regular record date for the interest payable on any interest payment date;

the place or places where principal of, and interest, if any, on the debt securities will be payable (and the method of such payment), where the securities of such series may be surrendered for registration of transfer or exchange, and where notices and demands to us in respect of the debt securities may be delivered;

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the period or periods within which, the price or prices at which, and the terms and conditions upon which we may redeem the debt securities;

any ability we have to redeem or purchase the debt securities pursuant to any redemption, sinking fund or analogous provisions and the period or periods within which, the price or prices at which, and the terms and conditions upon which debt securities of the series may be redeemed or purchased, in whole or in part, pursuant to such provisions;

the dates on which and the price or prices at which we will offer to repurchase debt securities at the option of the holders of debt securities and other detailed terms and provisions of these repurchase obligations;

the denominations in which the debt securities will be issued, if other than minimum denominations of \$2,000 and any integral multiple of \$1,000 in excess thereof;

whether the debt securities will be issued in the form of certificated debt securities or global debt securities;

the portion of principal amount of the debt securities payable upon declaration of acceleration of the maturity date, if other than the principal amount;

the currency of denomination of the debt securities, which may be United States Dollars or any foreign currency, and if such currency of denomination is a composite currency, the agency or organization, if any, responsible for overseeing such composite currency;

the designation of the currency, currencies or currency units in which payment of principal of, or premium and interest on, the debt securities will be made;

if payments of principal of, or premium or interest on, the debt securities will be made in one or more currencies or currency units other than that or those in which the debt securities are denominated, the manner in which the exchange rate with respect to these payments will be determined;

the manner in which the amounts of payment of principal of, or premium, if any, or interest on, the debt securities will be determined, if these amounts may be determined by reference to an index based on a currency or currencies other than that in which the debt securities are denominated or designated to be payable or by reference to a commodity, commodity index, stock exchange index or financial index;

any provisions relating to any security provided for the debt securities;

any addition to, deletion of or change in the Events of Default described in this prospectus or in the indenture with respect to the debt securities and any change in the acceleration provisions described in this prospectus or in the indenture with respect to the debt securities;

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any addition to, deletion of or change in the covenants described in this prospectus or in the indenture with respect to the debt securities;

any depositaries, interest rate calculation agents, exchange rate calculation agents or other agents with respect to the debt securities;

the provisions, if any, relating to conversion or exchange of any securities of such series, including if applicable, the conversion or exchange price and period, provisions as to whether conversion or exchange will be mandatory, the events requiring an adjustment of the conversion or exchange price and provisions affecting conversion or exchange; and

any other terms of the debt securities, which may supplement, modify, replace or delete any provision of the indenture as it applies to that series, including any terms that may be required under applicable law or regulations or advisable in connection with the marketing of the securities. (Section 2.2)

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We may issue debt securities that provide for an amount less than their stated principal amount to be due and payable upon declaration of acceleration of their maturity pursuant to the terms of the indenture. We will provide you with information on the federal income tax considerations and other special considerations applicable to any of these debt securities in the applicable prospectus supplement.

If we denominate the purchase price of any of the debt securities in a foreign currency or currencies or a foreign currency unit or units, or if the principal of and any premium and interest on any series of debt securities is payable in a foreign currency or currencies or a foreign currency unit or units, we will provide you with information on the restrictions, elections, general tax considerations, specific terms and other information with respect to that issue of debt securities and such foreign currency or currencies or foreign currency unit or units in the applicable prospectus supplement.

Transfer and Exchange

Each debt security will be represented by either (i) one or more global securities registered in the name of The Depository Trust Company, or the Depository, or a nominee of the Depository (we will refer to any debt security represented by a global debt security as a book-entry debt security), or (ii) a certificate issued in definitive registered form (we will refer to any debt security represented by a certificated security as a certificated debt security) as set forth in the applicable prospectus supplement. Except as set forth under the heading Global Debt Securities and Book-Entry System below, book-entry debt securities will not be issuable in certificated form.

Certificated Debt Securities. You may transfer or exchange certificated debt securities at any office we maintain for this purpose in accordance with the terms of the indenture. (Section 2.4) No service charge will be made for any transfer or exchange of certificated debt securities, but we may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection with a transfer or exchange. (Section 2.7)

You may effect the transfer of certificated debt securities and the right to receive the principal of, premium and interest on certificated debt securities only by surrendering the certificate representing those certificated debt securities and either reissuance by us or the trustee of the certificate to the new holder or the issuance by us or the trustee of a new certificate to the new holder.

Global Debt Securities and Book-Entry System. Each global debt security representing book-entry debt securities will be deposited with, or on behalf of, the Depository, and registered in the name of the Depository or a nominee of the Depository. Please see Global Securities.

Covenants

We will set forth in the applicable prospectus supplement any restrictive covenants applicable to any issue of debt securities. (Article IV)

No Protection In the Event of a Change of Control

Unless we state otherwise in the applicable prospectus supplement, the debt securities will not contain any provisions which may afford holders of the debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control) which could adversely affect holders of debt securities.

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Consolidation, Merger and Sale of Assets

We may not consolidate with or merge with or into, or convey, transfer or lease all or substantially all of our properties and assets to any person (a successor person) unless:

either we are the surviving corporation or the successor person (if other than GSI Group) is a corporation organized and validly existing under the laws of New Brunswick, Canada or any U.S. domestic jurisdiction and such successor person expressly assumes our obligations on the debt securities and under the indenture; and

immediately after giving effect to the transaction, no Default or Event of Default, shall have occurred and be continuing. Notwithstanding the above, any of our subsidiaries may consolidate with, merge into or transfer all or part of its properties to us. (Section 5.1)

Events of Default

Event of Default means with respect to any series of debt securities, any of the following:

default in the payment of any interest upon any debt security of that series when it becomes due and payable, and continuance of such default for a period of 30 days (unless the entire amount of the payment is deposited by us with the trustee or with a paying agent prior to the expiration of the 30-day period);

default in the payment of principal of any debt security of that series at its maturity;

default in the performance or breach of any other covenant or warranty by us in the indenture (other than a covenant or warranty that has been included in the indenture solely for the benefit of a series of debt securities other than that series), which default continues uncured for a period of 60 days after we receive written notice from the trustee or we and the trustee receive written notice from the holders of not less than 25% in principal amount of the outstanding debt securities of that series as provided in the indenture;

certain voluntary or involuntary events of bankruptcy, insolvency or reorganization of GSI Group; and

any other Event of Default provided with respect to debt securities of that series that is described in the applicable prospectus supplement. (Section 6.1)

No Event of Default with respect to a particular series of debt securities (except as to certain events of bankruptcy, insolvency or reorganization) necessarily constitutes an Event of Default with respect to any other series of debt securities. (Section 6.1) The occurrence of certain Events of Default or an acceleration under the indenture may constitute an event of default under certain of our indebtedness or that of our subsidiaries outstanding from time to time.

If an Event of Default with respect to debt securities of any series at the time outstanding occurs and is continuing, then the trustee or the holders of not less than 25% in principal amount of the outstanding debt securities of that series may, by a notice in writing to us (and to the trustee if given by the holders), declare to be due and payable immediately the principal of (or, if the debt securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series) and accrued and unpaid interest, if any, on all debt securities of that series. In the case of an Event of Default resulting from certain events of bankruptcy, insolvency or reorganization, the principal (or such specified amount) of and accrued and unpaid interest, if any, on all outstanding debt securities will become and be immediately due and payable without any declaration or other act on the part of the trustee or any holder of outstanding debt securities. At any time after a declaration of acceleration with respect to debt securities of any series has been made, but before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal

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amount of the outstanding debt securities of that series may rescind and annul the acceleration if all Events of Default, other than the non-payment of accelerated principal and interest, if any, with respect to debt securities of that series, have been cured or waived as provided in the indenture. (Section 6.2) We refer you to the prospectus supplement relating to any series of debt securities that are discount securities for the particular provisions relating to acceleration of a portion of the principal amount of such discount securities upon the occurrence of an Event of Default.

The indenture provides that the trustee will be under no obligation to exercise any of its rights or powers under the indenture unless the trustee receives indemnity satisfactory to it against any cost, liability or expense which might be incurred by it in exercising such right of power. (Section 7.1(e)) Subject to certain rights of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to the debt securities of that series. (Section 6.12)

No holder of any debt security of any series will have any right to institute any proceeding, judicial or otherwise, with respect to the indenture or for the appointment of a receiver or trustee, or for any remedy under the indenture, unless:

that holder has previously given to the trustee written notice of a continuing Event of Default with respect to debt securities of that series; and

the holders of not less than 25% in principal amount of the outstanding debt securities of that series have made written request, and offered reasonable indemnity or security, to the trustee to institute the proceeding as trustee, and the trustee has not received from the holders of not less than a majority in principal amount of the outstanding debt securities of that series a direction inconsistent with that request and has failed to institute the proceeding within 60 days. (Section 6.7)

Notwithstanding any other provision in the indenture, the holder of any debt security will have an absolute and unconditional right to receive payment of the principal of, premium and any interest on that debt security on or after the due dates expressed in that debt security and to institute suit for the enforcement of payment. (Section 6.8)

The indenture requires us, within 120 days after the end of our fiscal year, to furnish to the trustee a statement as to compliance with the indenture. (Section 4.3) If a Default or Event of Default occurs and is continuing with respect to the debt securities of any series and if it is known to a responsible officer of the trustee, the trustee shall mail to each Securityholder of the debt securities of that series notice of a Default or Event of Default within 90 days after it occurs. The indenture provides that the trustee may withhold notice to the holders of debt securities of any series of any Default or Event of Default (except in payment on any debt securities of that series) with respect to debt securities of that series if the trustee determines in good faith that withholding notice is in the interest of the holders of those debt securities. (Section 7.5)

Modification and Waiver

We and the trustee may modify and amend the indenture or the debt securities of any series without the consent of any holder of any debt security:

to cure any ambiguity, defect or inconsistency;

to comply with covenants in the indenture described above under the heading Consolidation, Merger and Sale of Assets ;

to provide for uncertificated securities in addition to or in place of certificated securities;

to make any change that does not adversely affect the rights of any holder of debt securities;

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to provide for the issuance of and establish the form and terms and conditions of debt securities of any series as permitted by the indenture;

to effect the appointment of a successor trustee with respect to the debt securities of any series and to add to or change any of the provisions of the indenture to provide for or facilitate administration by more than one trustee;

to conform the text of the indentures to any provision of the Description of Debt Securities to the extent that such provision in the Description of Debt Securities was intended to be a verbatim recitation of a provision of the indentures; or

to comply with requirements of the SEC in order to effect or maintain the qualification of the indenture under the Trust Indenture Act. (Section 9.1)

We may also modify and amend the indenture with the consent of the holders of at least a majority in principal amount of the outstanding debt securities of each series affected by the modifications or amendments. We may not make any modification or amendment without the consent of the holders of each affected debt security then outstanding if that amendment will:

reduce the amount of debt securities whose holders must consent to an amendment, supplement or waiver;

reduce the rate of or extend the time for payment of interest (including default interest) on any debt security;

reduce the principal of or premium on or change the fixed maturity of any debt security or reduce the amount of, or postpone the date fixed for, the payment of any sinking fund or analogous obligation with respect to any series of debt securities;

reduce the principal amount of discount securities payable upon acceleration of maturity;

waive a default in the payment of the principal of, premium or interest on any debt security (except a rescission of acceleration of the debt securities of any series by the holders of at least a majority in aggregate principal amount of the then outstanding debt securities of that series and a waiver of the payment default that resulted from such acceleration);

make the principal of or premium or interest on any debt security payable in currency other than that stated in the debt security;

make any change to certain provisions of the indenture relating to, among other things, the right of holders of debt securities to receive payment of the principal of, premium and interest on those debt securities and to institute suit for the enforcement of any such payment and to waivers or amendments; or

waive a redemption payment with respect to any debt security. (Section 9.3)

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all debt securities of that series waive our compliance with provisions of the indenture. (Section 9.2) The holders of a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all the debt securities of such series waive any past default under the indenture with respect to that series and its consequences, except a default in the payment of the principal of, premium or any interest on any debt security of that series; provided, however, that the holders of a majority in principal amount of the outstanding debt securities of any series may rescind an acceleration and its consequences, including any related payment default that resulted

from the acceleration. (Section 6.13)

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Defeasance of Debt Securities and Certain Covenants in Certain Circumstances

Legal Defeasance. The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, we may be discharged from any and all obligations in respect of the debt securities of any series (subject to certain exceptions). We will be so discharged upon the deposit with the trustee, in trust, of money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. Dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities.

This discharge may occur only if, among other things, we have delivered to the trustee an opinion of counsel stating that we have received from, or there has been published by, the United States Internal Revenue Service a ruling or, since the date of execution of the indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that, and based thereon such opinion shall confirm that, the holders of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit, defeasance and discharge and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit, defeasance and discharge had not occurred. (Section 8.3)

Defeasance of Certain Covenants. The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, upon compliance with certain conditions:

we may omit to comply with the covenant described under the heading **Consolidation, Merger and Sale of Assets** and certain other covenants set forth in the indenture, as well as any additional covenants which may be set forth in the applicable prospectus supplement; and

any omission to comply with those covenants will not constitute a Default or an Event of Default with respect to the debt securities of that series (**covenant defeasance**).

The conditions include:

depositing with the trustee money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. Dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal of, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities; and

delivering to the trustee an opinion of counsel to the effect that the holders of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit and related covenant defeasance and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit and related covenant defeasance had not occurred. (Section 8.4)

Covenant Defeasance and Events of Default. In the event we exercise our option to effect covenant defeasance with respect to any series of debt securities and the debt securities of that series are declared due and payable because of the occurrence of any Event of Default, the amount of money and/or U.S. government obligations or foreign government obligations on deposit with the trustee will be sufficient to pay amounts due on the debt securities of that series at the time of their stated maturity but may not be sufficient to pay amounts due on the debt securities of that series at the time of the acceleration resulting from the Event of Default. However, we shall remain liable for those payments. (Section 8.4).

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Conversion Rights

If applicable, the terms of the debt securities of any series that are convertible into or exchangeable for our common shares or our other securities will be described in an applicable prospectus supplement. These terms will describe whether conversion or exchange is mandatory, at the option of the holder, or at our option. These terms may include provisions pursuant to which the number of common shares or our other securities to be received by the holders of debt securities would be subject to adjustment. Any such conversion or exchange will comply with applicable law, our Articles and By-Laws.

Governing Law

The indenture and the debt securities, including any claim or controversy arising out of or relating to the indenture or the securities, will be governed by the laws of the State of New York without regard to conflict of law principles that would result in the application of any law other than the laws of the State of New York. (Section 10.10)

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GLOBAL SECURITIES

Book-Entry, Delivery and Form

Unless we indicate differently in a prospectus supplement, the securities initially will be issued in book-entry form and represented by one or more global notes or global securities, or, collectively, global securities. The global securities will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, as depository, or DTC, and registered in the name of Cede & Co., the nominee of DTC. Unless and until it is exchanged for individual certificates evidencing securities under the limited circumstances described below, a global security may not be transferred except as a whole by the depository to its nominee or by the nominee to the depository, or by the depository or its nominee to a successor depository or to a nominee of the successor depository.

DTC has advised us that it is:

- a limited-purpose trust company organized under the New York Banking Law;
- a banking organization within the meaning of the New York Banking Law;
- a member of the Federal Reserve System;
- a clearing corporation within the meaning of the New York Uniform Commercial Code; and
- a clearing agency registered pursuant to the provisions of Section 17A of the Exchange Act.

DTC holds securities that its participants deposit with DTC. DTC also facilitates the settlement among its participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct participants in DTC include securities brokers and dealers, including underwriters, banks, trust companies, clearing corporations and other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation, or DTCC. DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others, which we sometimes refer to as indirect participants, that clear through or maintain a custodial relationship with a direct participant, either directly or indirectly. The rules applicable to DTC and its participants are on file with the SEC.

Purchases of securities under the DTC system must be made by or through direct participants, which will receive a credit for the securities on DTC's records. The ownership interest of the actual purchaser of a security, which we sometimes refer to as a beneficial owner, is in turn recorded on the direct and indirect participants' records. Beneficial owners of securities will not receive written confirmation from DTC of their purchases. However, beneficial owners are expected to receive written confirmations providing details of their transactions, as well as periodic statements of their holdings, from the direct or indirect participants through which they purchased securities. Transfers of ownership interests in global securities are to be accomplished by entries made on the books of participants acting on behalf of beneficial owners. Beneficial owners will not receive certificates representing their ownership interests in the global securities, except under the limited circumstances described below.

To facilitate subsequent transfers, all global securities deposited by direct participants with DTC will be registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of securities with DTC and their registration in the name of Cede & Co. or such other nominee will not change the beneficial ownership of the securities. DTC has no knowledge of the actual beneficial owners of the securities. DTC's records reflect only the identity of the direct participants to whose accounts the securities are credited, which may or may not be the beneficial owners. The participants are responsible for keeping account of their holdings on behalf of their customers.

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So long as the securities are in book-entry form, you will receive payments and may transfer securities only through the facilities of the depository and its direct and indirect participants. We will maintain an office or agency in the location specified in the prospectus supplement for the applicable securities, where notices and demands in respect of the securities and the indenture may be delivered to us and where certificated securities may be surrendered for payment, registration of transfer or exchange.

Conveyance of notices and other communications by DTC to direct participants, by direct participants to indirect participants and by direct participants and indirect participants to beneficial owners will be governed by arrangements among them, subject to any legal requirements in effect from time to time.

Redemption notices will be sent to DTC. If less than all of the securities of a particular series are being redeemed, DTC's practice is to determine by lot the amount of the interest of each direct participant in the securities of such series to be redeemed.

Neither DTC nor Cede & Co. (or such other DTC nominee) will consent or vote with respect to the securities. Under its usual procedures, DTC will mail an omnibus proxy to us as soon as possible after the record date. The omnibus proxy assigns the consenting or voting rights of Cede & Co. to those direct participants to whose accounts the securities of such series are credited on the record date, identified in a listing attached to the omnibus proxy.

So long as securities are in book-entry form, we will make payments on those securities to the depository or its nominee, as the registered owner of such securities, by wire transfer of immediately available funds. If securities are issued in definitive certificated form under the limited circumstances described below, we will have the option of making payments by check mailed to the addresses of the persons entitled to payment or by wire transfer to bank accounts in the United States designated in writing to the applicable trustee or other designated party at least 15 days before the applicable payment date by the persons entitled to payment.

Redemption proceeds, distributions and dividend payments on the securities will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit direct participants' accounts upon DTC's receipt of funds and corresponding detail information from us on the payment date in accordance with their respective holdings shown on DTC records. Payments by participants to beneficial owners will be governed by standing instructions and customary practices, as is the case with securities held for the account of customers in bearer form or registered in street name. Those payments will be the responsibility of participants and not of DTC or us, subject to any statutory or regulatory requirements in effect from time to time. Payment of redemption proceeds, distributions and dividend payments to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is our responsibility, disbursement of payments to direct participants is the responsibility of DTC, and disbursement of payments to the beneficial owners is the responsibility of direct and indirect participants.

Except under the limited circumstances described below, purchasers of securities will not be entitled to have securities registered in their names and will not receive physical delivery of securities. Accordingly, each beneficial owner must rely on the procedures of DTC and its participants to exercise any rights under the securities and the indenture.

The laws of some jurisdictions may require that some purchasers of securities take physical delivery of securities in definitive form. Those laws may impair the ability to transfer or pledge beneficial interests in securities.

DTC may discontinue providing its services as securities depository with respect to the securities at any time by giving reasonable notice to us. Under such circumstances, in the event that a successor depository is not obtained, securities certificates are required to be printed and delivered.

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As noted above, beneficial owners of a particular series of securities generally will not receive certificates representing their ownership interests in those securities. However, if:

DTC notifies us that it is unwilling or unable to continue as a depository for the global security or securities representing such series of securities or if DTC ceases to be a clearing agency registered under the Exchange Act at a time when it is required to be registered and a successor depository is not appointed within 90 days of the notification to us or of our becoming aware of DTC's ceasing to be so registered, as the case may be;

we determine, in our sole discretion, not to have such securities represented by one or more global securities; or

an Event of Default has occurred and is continuing with respect to such series of securities, we will prepare and deliver certificates for such securities in exchange for beneficial interests in the global securities. Any beneficial interest in a global security that is exchangeable under the circumstances described in the preceding sentence will be exchangeable for securities in definitive certificated form registered in the names that the depository directs. It is expected that these directions will be based upon directions received by the depository from its participants with respect to ownership of beneficial interests in the global securities.

We have obtained the information in this section and elsewhere in this prospectus concerning DTC and DTC's book-entry system from sources that are believed to be reliable, but we take no responsibility for the accuracy of this information.

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PLAN OF DISTRIBUTION

We or the selling shareholder may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We or the selling shareholder may sell the securities separately or together:

to or through one or more underwriters, brokers or dealers in a public offering or open market transactions, including option, share lending or other derivative or hedging transactions;

through agents; and/or

directly to one or more purchasers.

We or the selling shareholder may distribute the securities from time to time in one or more transactions:

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

We or the selling shareholder may solicit directly offers to purchase the securities being offered by this prospectus. We or the selling shareholder may also designate agents to solicit offers to purchase the securities from time to time. We or the selling shareholder may sell the securities being offered by this prospectus by any method permitted by law, including sales deemed to be an at the market offering as defined in Rule 415(a)(4) of the Securities Act of 1933, as amended, or the Securities Act, including without limitation sales made directly on the NASDAQ Global Select Market, on any other existing trading market for our securities or to or through a market maker. We will name in a prospectus supplement any agent involved in the offer or sale of our securities to the extent required by law.

If we or the selling shareholder utilize a dealer in the sale of the securities being offered by this prospectus, we or the selling shareholder will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

If we or the selling shareholder utilize an underwriter in the sale of the securities being offered by this prospectus, we or the selling shareholder will execute an underwriting agreement with the underwriter at the time of sale and we will provide the name of any underwriter in the prospectus supplement that the underwriter will use to make resales of the securities to the public. In connection with the sale of the securities, we, the selling shareholder or the purchasers of securities for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the securities to or through dealers, and the underwriter may compensate those dealers in the form of discounts, concessions or commissions.

We will provide in the applicable prospectus supplement any compensation we or the selling shareholder will pay to underwriters, dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers. In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement. Underwriters, dealers and agents participating in the distribution of the securities may be deemed to be underwriters within the meaning of the Securities Act, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We or the selling shareholder may

enter into agreements to indemnify underwriters, dealers and agents against civil liabilities,

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including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof. In the event that an offering made pursuant to this prospectus is subject to FINRA Rule 5121, the prospectus supplement will comply with the prominent disclosure provisions of that rule.

The securities may or may not be listed on a national securities exchange. To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involves the sale by persons participating in the offering of more securities than we or the selling shareholder sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

We or the selling shareholder may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the securities from us or the selling shareholder at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions we or the selling shareholder pay for solicitation of these contracts.

We or the selling shareholder may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with any derivative transaction, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others, including the selling shareholder, to settle those sales or to close out any related open borrowings of stock, and may use securities received from us or the selling shareholder in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be identified in the applicable prospectus supplement or a post-effective amendment to the registration statement of which this prospectus is a part. In addition, we or the selling shareholder may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

The underwriters, dealers and agents may engage in transactions with us or the selling shareholder, or perform services for us or the selling shareholder, in the ordinary course of business.

In addition, the common shares offered pursuant to this prospectus by the selling shareholder may be sold under Rule 144 under the Securities Act of 1933, as amended, or otherwise rather than pursuant to this prospectus.

Pursuant to a registration rights agreement, we have agreed to indemnify the selling shareholder and certain of its affiliates against certain liabilities, including liabilities under the Securities Act of 1933, as amended.

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LEGAL MATTERS

Latham & Watkins LLP, New York, New York will issue an opinion about certain legal matters with respect to the enforceability of the debt securities for us. Certain matters relating to New Brunswick law regarding the validity of common shares will be passed on by Stewart McKelvey, New Brunswick, Canada. In connection with any particular offering of the securities in the future, the validity of those securities may be passed upon for us by Latham & Watkins LLP, our special counsel regarding New York matters; Stewart McKelvey, our special counsel in New Brunswick; or such other counsel as may be specified in the applicable prospectus supplement. Any underwriters will be advised about the other issues relating to any offering by their own legal counsel.

EXPERTS

The consolidated financial statements of GSI Group Inc. appearing in GSI Group Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2011, and the effectiveness of GSI Group Inc.'s internal control over financial reporting as of December 31, 2011, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are, and audited financial statements to be included in subsequently filed documents will be, incorporated herein in reliance upon the reports of Ernst & Young LLP pertaining to such financial statements (to the extent covered by consents filed with the Securities and Exchange Commission) given on the authority of such firm as experts in accounting and auditing.

ENFORCEMENT OF CIVIL LIABILITIES

The Company is a corporation existing under the laws of New Brunswick, Canada. As a result, it may be difficult for investors to effect service of process within the United States upon the Company, or to realize upon judgments of courts of the United States predicated upon civil liability of the Company under U.S. federal securities laws.

LIMITATION ON LIABILITY AND DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

Our by-laws require that we will indemnify our current or former directors and officers and each person who acts or acted at the Company's request as a director or officer of a body corporate of which the Company is or was a shareholder or creditor against all costs, charges and expenses incurred by them in connection with each proceeding in which such officer, director or person is involved as a result of serving or having served at our request. Our indemnification obligation covers all costs, charges and expenses, including amounts paid to settle an action or satisfy a judgment reasonably incurred by such officer or director by reason of having been an officer or director. Indemnification is not available with respect to a proceeding as to which it has been adjudicated that such person did not act honestly and in good faith with a view to our best interests, and, with the reasonable belief that his or her action was lawful. The above provisions are intended to follow and are subject to the limitations set forth in section 81 of the New Brunswick Business Corporations Act.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

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GSI Group Inc.

Common Shares

Debt Securities

PROSPECTUS

, 2012

Table of Contents**PART II****INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other expenses of issuance and distribution.**

The following table sets forth the estimated costs and fees payable by GSI Group Inc. in connection with the sale of the securities being registered hereby. The expenses of registration of the common shares offered by the selling shareholder will be borne by us in accordance with the registration rights agreement. With the exception of the Securities and Exchange Commission registration fee, all amounts shown are estimates.

| | |
|---|----------------------|
| Securities and Exchange Commission registration fee | \$ 26,571.61 |
| Blue sky qualification fees and expenses | \$ 5,000.00 |
| Printing and engraving expenses | \$ 10,000.00 |
| Legal fees and expenses | \$ 200,000.00 |
| Accounting fees and expenses | \$ 100,000.00 |
| Transfer agent and listing fees | \$ 10,000.00 |
| Trustee fees and expenses | \$ 5,000.00 |
| Miscellaneous expenses | \$ 5,000.00 |
| Total | \$ 361,571.61 |

Item 15. Indemnifications of directors and officers.

Our by-laws require that we indemnify current or former directors and officers against expenses incurred by them in connection with each proceeding in which such officer or director is involved as a result of serving or having served at our request. Our indemnification obligation covers all costs, charges and expenses, including amounts paid to settle an action or satisfy a judgment reasonably incurred by such officer or director by reason of having been an officer or director. Indemnification is not available with respect to a proceeding as to which it has been adjudicated that such person did not act honestly and in good faith with a view to our best interests, and, with the reasonable belief that his or her action was lawful. The above provisions are intended to follow and are subject to the limitations set forth in section 81 of the New Brunswick Business Corporations Act (NB BCA).

Section 81(1) of the NB BCA provides that except in respect of an action by or on behalf of us or a body corporate to procure a judgment in its favor, we may indemnify a former or current director or officer or other person who acts or acted at our request as a director or officer of a body corporate of which we are or were a shareholder or creditor, and that person's heirs and legal representatives, against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by that person in respect of any civil, criminal or administrative action or proceeding to which that person is made a party by reason of being or having been a director or officer of the Company or body corporate, if (a) that person acted honestly and in good faith with a view to our best interests, and (b) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, that person had reasonable grounds for believing that that person's conduct was lawful.

Section 81(2) of the NB BCA provides that we may with court approval indemnify a former or current director or officer or other person who acts or acted at our request as a director or officer of a body corporate of which we are or were a shareholder or creditor, and that person's heirs and legal representatives in respect of an action by or on behalf of us or body corporate to procure a judgment in its favor, to which he is made a party by reason of being or having been a director or an officer of the Company or body corporate, against all costs, charges and expenses reasonably incurred by him in connection with such action if (a) that person acted honestly and in good faith with a view to our best interests, and (b) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, that person had reasonable grounds for believing that that person's conduct was lawful.

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Section 81(3) of the NB BCA provides that notwithstanding anything in section 81 of the NB BCA, a former or current director or officer or other person who acts or acted at our request as a director or officer of a body corporate of which we are or were a shareholder or creditor, and that person's heirs and legal representatives is entitled to indemnity from us in respect of all costs, charges and expenses reasonably incurred by him in connection with the defense of any civil, criminal or administrative action or proceeding to which he is made a party by reason of being or having been a director or officer of the Company or body corporate, if the person seeking indemnity (a) was substantially successful on the merits of his defense of the action or proceeding, (b) acted honestly and in good faith with a view to our best interests, (c) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, had reasonable grounds for believing that that person's conduct was lawful and (d) is fairly and reasonably entitled to indemnity.

Section 81(4) of the NB BCA provides that we may purchase and maintain insurance for the benefit of any former or current director or officer or other person who acts or acted at our request as a director or officer of a body corporate of which we are or were a shareholder or creditor, and that person's heirs and legal representatives against any liability incurred by him (a) in his capacity as our director or officer, except where the liability relates to his failure to act honestly and in good faith with a view to our best interests; or (b) in his capacity as a director or officer of another body corporate if he acts or acted in that capacity at our request, except where the liability relates to his failure to act honestly and in good faith with a view to the best interests of that body corporate.

We and our wholly owned subsidiary, GSI Group Corporation, have also entered into indemnification agreements with our chief executive officer and chief financial officer. The indemnification agreements provide that we will indemnify such persons if they are, or are threatened to be made, a party to or a participant in any proceeding, other than a proceeding by or in the right of us to procure a judgment in our favor. Such persons are indemnified to the fullest extent permitted by applicable law against all expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by them or on their behalf in connection with such proceeding or any claim, issue or matter therein, if they acted honestly and in good faith with a view to our best interests, and in the case of a criminal or administrative proceeding that is enforced by a monetary penalty, such persons had reasonable grounds for believing that their conduct was lawful. With the leave of the court, we also indemnify such persons to the fullest extent permitted by applicable law against all expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by them or on their behalf if they are, or are threatened to be made, a party to or a participant in any proceeding by us or in our right to procure a judgment in our favor, provided that such persons acted honestly and in good faith with a view to our best interests, and in the case of a criminal or administrative proceeding that is enforced by a monetary penalty, such persons had reasonable grounds for believing that their conduct was lawful. To the extent that such persons are a party to or a participant in and are successful (on the merits or otherwise) in defense of any proceeding or any claim, issue or matter therein, we will indemnify them against all expenses actually and reasonably incurred in connection with the proceedings. To the extent permitted by applicable law, if such persons are not wholly successful in such proceeding but are successful, on the merits or otherwise, in defense of one or more but less than all claims, issues or matters in such proceeding, we will indemnify them against all expenses actually and reasonably incurred in connection with (a) each successfully resolved claim, issue or matter and (b) any claim, issue or matter related to any such successfully resolved claim, issuer or matter.

We also have director and officer insurance policies that will insure our officers and directors against unindemnifiable costs, charges and expenses, and may also enable us to recover some or all of any future amounts paid pursuant to our indemnity obligations.

Item 16. Exhibits.

The attached Exhibit Index is incorporated herein by reference.

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Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in this registration statement.

Provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) above do not apply if the registration statement is on Form S-3 or Form F-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement or is contained in a form of prospectus filed pursuant to Rule 424(b) that is a part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby further undertakes that, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(1) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(2) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however,* that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated

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or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(c) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(d) The undersigned registrant hereby undertakes that: (i) for purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of the registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of the registration statement as of the time it was declared effective; and (ii) for the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(e) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(f) If and when applicable, the undersigned registrant, hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Securities and Exchange Commission under Section 305(b)(2) of the Act.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Bedford, state of Massachusetts, on March 14, 2012.

GSI GROUP INC.

By: /s/ ROBERT J. BUCKLEY
Name: **Robert J. Buckley**
Title: **Chief Financial Officer**

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Table of Contents**POWER OF ATTORNEY**

The individuals whose signatures appear below constitute and appoint John A. Roush and Robert Buckley, and each of them, his or her true and lawful attorneys-in-fact and agents with full and several power of substitution, for him or her and his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their substitutes, may lawfully do or cause to be done.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

| Signature | Title | Date |
|---|--|----------------|
| /s/ STEPHEN W. BERSHAD Stephen W. Bershad | Chairman of the Board of Directors | March 14, 2012 |
| /s/ JOHN A. ROUSH John A. Roush | Director, Chief Executive Officer (Principal Executive Officer) | March 14, 2012 |
| /s/ ROBERT J. BUCKLEY Robert J. Buckley | Chief Financial Officer (Principal Financial Officer) | March 14, 2012 |
| /s/ PETER L. CHANG Peter L. Chang | Vice President, Corporate Controller (Principal Accounting Officer) | March 14, 2012 |
| /s/ EUGENE I. DAVIS Eugene I. Davis | Director | March 14, 2012 |
| /s/ DENNIS J. FORTINO Dennis J. Fortino | Director | March 14, 2012 |
| /s/ IRA J. LAMEL Ira J. Lamel | Director | March 14, 2012 |
| /s/ BYRON O. POND Byron O. Pond | Director | March 14, 2012 |

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EXHIBIT INDEX

| Exhibit No. | Description |
|--------------------|---|
| 1.1* | Form of Underwriting Agreement |
| 2.1 | Agreement and Plan of Merger, by and among the Registrant, Eagle Acquisition Corporation, and Excel Technology, Inc. dated July 9, 2008 (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on July 11, 2008). |
| 2.2 | Asset Purchase Agreement, by and between GSI Group Corporation and Gooch & Housego (California) LLC., dated July 3, 2008 (incorporated by reference to Exhibit 2.1 to our Quarterly Report on Form 10-Q filed on April 13, 2010). |
| 2.3 | Final Fourth Modified Joint Chapter 11 Plan of Reorganization for the Registrant, GSI Group Corporation, and MES International, Inc., dated as of May 24, 2010, as supplemented on May 27, 2010, and as confirmed by the United States Bankruptcy Court for the District of Delaware on May 27, 2010 (incorporated by reference to Exhibit 99.2 to our Current Report on Form 8-K filed on May 28, 2010). |
| 3.1+ | Certificate and Articles of Continuance of the Registrant, dated March 22, 1999. |
| 3.2+ | Articles of Amendment of the Registrant, dated May 26, 2005. |
| 3.3 | Articles of Reorganization of the Registrant, dated July 23, 2010 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on July 23, 2010). |
| 3.4 | Articles of Amendment of the Registrant, dated December 29, 2010 (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on December 29, 2010). |
| 3.5 | By-Laws of the Registrant, as amended (incorporated by reference to Exhibit 3.2 to our Quarterly Report on Form 10-Q filed on April 13, 2010). |
| 4.1 | Reference is made to Exhibits 3.1, 3.2, 3.3, 3.4 and 3.5. |
| 4.2+ | Form of Common Share Certificate |
| 4.3+ | Form of Indenture, to be entered into between GSI Group Inc. and Wilmington Trust, National Association. |
| 4.4* | Form of Debt Security. |
| 5.1+ | Opinion of Stewart McKelvey. |
| 5.2+ | Opinion of Latham & Watkins LLP. |
| 12.1+ | Statement regarding computation of ratio of earnings to fixed charges |
| 23.1+ | Consent of Ernst & Young LLP. |
| 23.2+ | Consent of Stewart McKelvey (included in Exhibit 5.1). |
| 23.3+ | Consent of Latham & Watkins LLP (included in Exhibit 5.2). |
| 24.1+ | Power of Attorney (included on the signature page of this registration statement). |
| 25.1+ | Statement of Eligibility of Trustee on Form T-1 |

* To be filed by amendment or as an exhibit to a report filed under the Securities Exchange Act of 1934, as amended, and incorporated herein by reference.

+ Filed herewith