Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 412 (1975): Expanded Metal Steel Sheets for General Purposes [MTD 4: Wrought Steel Products]
Indian Standard

SPECIFICATION FOR
EXPANDED METAL STEEL SHEETS FOR
GENERAL PURPOSES

(Second Revision)

Fourth Reprint JULY 2007
(Including Amendment No. 1)

UDC 669.14-417.3

© Copyright 1976

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3

March 1976
AMENDMENT NO. 1  JUNE 1980
TO
IS:412-1975  SPECIFICATION FOR EXPANDED METAL STEEL SHEETS FOR GENERAL PURPOSES
(Second Revision)

Addenda

(Page 7, clause 5.2.3) – Add the following new clause after 5.2.3:

'5.2.4 The following tolerances shall apply for thickness and width of strands:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>As per IS:1852-1973†</td>
</tr>
<tr>
<td>Width of strand</td>
<td>± 0.25 mm</td>
</tr>
</tbody>
</table>

(Page 7, foot-note with '†' mark) – Add the following foot-note after '†' mark:

'†Specification for rolling and cutting tolerances for hot rolled steel products (second revision).'
Indian Standard
SPECIFICATION FOR
EXPANDED METAL STEEL SHEETS FOR
GENERAL PURPOSES
(Second Revision)

Wrought Steel Products Sectional Committee, SMDC 5

Chairman
Dr. U. N. Bhavary

Representing
Modella Steel and Alloys Ltd., Bombay

Members
Shri E. Abharam
Shri M. Anjaneyulu

Shri D. P. Sanyal (Alternate)
Shri N. C. Bagchi
Shri A. K. Banerjee

Shri B. N. Singh (Alternate)
Shri S. Banerjee
Shri S. K. Basu
Shri A. Roy Chowdhury (Alternate)
Dr. S. S. Bhattacharjee

Shri Y. P. S. Bishnoi
Shri J. C. Enry (Alternate)
Shri P. K. Chakravarty
Shri M. C. Kumaraswamy (Alternate)
Shri G. Chatterjee

Shri K. Z. Mathem (Alternate)
Shri P. K. Chatterjee
Shri M. M. Gupta (Alternate)
Dr. N. S. Datar
Shri K. S. Singh (Alternate)

© Copyright 1976
BUREAU OF INDIAN STANDARDS

This publication is protected under the Indian Copyright Act (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.
(Continued from page 1)

Members

Maj-Gen M. C. Dewan
Shri S. Balakrishnan (Alternate)
Director (M & C)
Chemist & Metallurgist,
Chittaranjan Locomotive Works (Alternate)
Shri A. K. Gupta

Representing

Tinplate Company of India Ltd, Golmuri
Ministry of Railways
Inspection Wing, Directorate General of Supplies & Disposals, New Delhi
Ministry of Railways

(Alternate)

(Joint Director Standards)

(Wagon)

(Iron & Steel) (Alternate)

Dr V. C. Kashiwagi
Shri S. S. Murugan (Alternate)

Dr V. C. Kashiwagi

Special Steels Ltd, Bombay

Hindustan Steel Ltd (Bhilai Steel Plant), Bhilai

Iron and Steel Control, Calcutta

Indian Iron & Steel Co Ltd, Burnpur

Hindustan Shipyard Ltd, Visakhapatnam

Indian Steel and Wire Products Ltd, Indranagar

Metal Box Co of India Ltd, Calcutta

Ministry of Defence (DGOF)

Hindustan Steel Works Construction Ltd, Calcutta

Mukand Iron & Steel Works Ltd, Bombay

Indian Institute of Metals, Calcutta

Industrial Fasteners Association of India, Calcutta

Spinning Machinery (Cotton System) Sectional Committee, TDC 30, ISI

Joint Plant Committee, Calcutta

Central Boilers Board, Ministry of Industrial Development, New Delhi

M. N. Dastur & Co (Pvt) Ltd, Calcutta

Ministry of Defence (R & D) (Alternate)

Director General, ISI (Ex-officio Member)

Secretary

Shri Shanmati Swarup
Assistant Director (Metals), ISI

(Continued on page 9)
Indian Standard

SPECIFICATION FOR
EXPANDED METAL STEEL SHEETS FOR
GENERAL PURPOSES

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 20 November 1975, after the draft finalized by the Wrought Steel Products Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard was first issued in 1954 and subsequently revised in 1962. In this revision, the following modifications have been made:

a) Permissible variations for product analysis has been specified,

b) A new size of mesh 9.5 × 28.5 mm has been included, and

c) The tolerances on size of mesh have been modified.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This specification covers expanded metal steel sheets used for general purposes.

2. SUPPLY OF MATERIAL

2.1 General requirements relating to the supply of expanded metal steel sheets shall conform to IS: 1387-1967†.

*Rules for rounding off numerical values (revised).
†General requirements for the supply of metallurgical materials (first revision).
3. MANUFACTURE

3.1 Blank steel sheets and plates used in the manufacture of expanded metal steel sheets shall be made from steel manufactured by the open-hearth, electric, duplex, basic-oxygen or a combination of these processes. In case any other process is employed by the manufacturer, prior approval of the purchaser should be obtained. If basic-oxygen process is employed for manufacture, the nitrogen content of the steel shall not exceed 0·007 percent.

Note — The nitrogen content of steel should be ensured by the manufacturer by occasional product analysis.

3.2 The ladle analysis of steel for manufacture of expanded metal sheets, when analysed in accordance with IS : 228 (Part III) -1972* and IS : 228 (Part IX) -1972† shall be as follows:

Percent, Max

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur</td>
<td>0·050</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0·050</td>
</tr>
</tbody>
</table>

3.2.1 Permissible variation in the product analysis from the limits specified under 3.2 shall be as follows:

Permissible Variation Over the
Specified Limits, Percent

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur</td>
<td>+ 0·005</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>+ 0·005</td>
</tr>
</tbody>
</table>

3.3 Blank steel sheets and plates shall be supplied with or without guaranteed mechanical properties as required by the purchaser.

3.3.1 When blank steel sheets and plates are supplied with guaranteed mechanical properties they shall have a tensile strength between 280 MN/m² and 380 MN/m² when tested in accordance with IS : 1663-1972‡.

Note -- 1 N/mm² = 1 MN/m² = 0·1020 kgf/mm².

3.3.1.1 A test piece cut from the blank sheets and plates when tested in accordance with IS : 1692-1974§, shall withstand without crack, being doubled over, when cold, either by pressure or by blows from a hammer, until the two sides of the test piece are parallel and the internal radius is not greater than 1·5 times the thickness of the test piece.

†Methods of chemical analysis of steels: Part IX Determination of sulphur in plain carbon steels by evolution method (second revision).
‡Method for tensile testing of steel sheet and strip of thickness 0·5 mm to 3 mm (first revision).
§Method for simple bend testing of steel sheet and strip less than 3 mm thick (first revision).
4 The tolerances on weights and dimensions of blank sheets and plates shall be as agreed to between the supplier of blank sheets and plates, and the manufacturer of expanded metal.

5 The blank steel sheets and plates shall be cleanly rolled. They shall be free from cracks; surface flaws; laminations; rough, jagged and imperfect edges; and all other harmful surface defects.

. SIZE OF MESH

1. The size of mesh of expanded metal sheets shall be based on the measurements of the shortway and the longway of the diamond as shown in Fig. 1.

![Diagram of mesh size](image)

**Fig. 1 SIZE OF MESH**

. PROPERTIES AND DIMENSIONS

.1 The properties and dimensions of expanded metal sheets shall be as given in Table 1.

.2 Tolerances

5.2.1 Dimensions — When expanded metal sheets are required to be cut to specified dimensions, the limits of tolerances shall be as follows:

- On nominal specified dimension: ± 10 mm
- On minimum specified dimension: - 0 mm
- + 10 mm
<table>
<thead>
<tr>
<th>R.F. No.</th>
<th>Size of Mesh (Nominal)</th>
<th>Dimensions of Strand (Nominal)</th>
<th>Nominal Mass per Square Metre</th>
<th>Nominal Area Strands per Metre</th>
<th>Cross-Sectional Area m² per Metre</th>
<th>Largest Standard Size of Sheets Normally Stocked</th>
<th>Size of Sheet (mm × mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>250</td>
<td>6.25</td>
<td>3.15</td>
<td>3.082</td>
<td>3.93</td>
<td>3.75</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>250</td>
<td>5.00</td>
<td>3.15</td>
<td>2.470</td>
<td>3.15</td>
<td>3.75</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>250</td>
<td>3.25</td>
<td>3.15</td>
<td>1.599</td>
<td>2.04</td>
<td>3.75</td>
</tr>
<tr>
<td>4</td>
<td>75</td>
<td>200</td>
<td>6.50</td>
<td>3.15</td>
<td>4.282</td>
<td>5.46</td>
<td>3.75</td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>200</td>
<td>5.00</td>
<td>3.15</td>
<td>3.294</td>
<td>4.20</td>
<td>3.75</td>
</tr>
<tr>
<td>6</td>
<td>75</td>
<td>200</td>
<td>3.25</td>
<td>3.15</td>
<td>2.141</td>
<td>2.73</td>
<td>3.75</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>115</td>
<td>6.50</td>
<td>3.15</td>
<td>8.023</td>
<td>10.23</td>
<td>3.75</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
<td>115</td>
<td>5.00</td>
<td>3.15</td>
<td>6.172</td>
<td>7.47</td>
<td>3.75</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
<td>75</td>
<td>5.00</td>
<td>3.15</td>
<td>6.172</td>
<td>7.47</td>
<td>3.75</td>
</tr>
<tr>
<td>10</td>
<td>40</td>
<td>75</td>
<td>3.25</td>
<td>2.24</td>
<td>2.834</td>
<td>3.64</td>
<td>2.50</td>
</tr>
<tr>
<td>11</td>
<td>40</td>
<td>115</td>
<td>3.25</td>
<td>2.24</td>
<td>4.007</td>
<td>5.11</td>
<td>2.50</td>
</tr>
<tr>
<td>12</td>
<td>40</td>
<td>115</td>
<td>3.25</td>
<td>1.60</td>
<td>2.039</td>
<td>2.60</td>
<td>2.50</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>75</td>
<td>3.25</td>
<td>1.60</td>
<td>5.29</td>
<td>7.04</td>
<td>2.50</td>
</tr>
<tr>
<td>14</td>
<td>40</td>
<td>75</td>
<td>3.25</td>
<td>2.24</td>
<td>3.931</td>
<td>5.01</td>
<td>2.50</td>
</tr>
<tr>
<td>15</td>
<td>25</td>
<td>75</td>
<td>3.25</td>
<td>1.60</td>
<td>2.808</td>
<td>3.58</td>
<td>2.50</td>
</tr>
<tr>
<td>16</td>
<td>25</td>
<td>75</td>
<td>3.25</td>
<td>1.25</td>
<td>2.194</td>
<td>2.80</td>
<td>2.50</td>
</tr>
<tr>
<td>17</td>
<td>25</td>
<td>75</td>
<td>3.25</td>
<td>1.25</td>
<td>7.152</td>
<td>9.11</td>
<td>2.50</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>60</td>
<td>4.25</td>
<td>3.15</td>
<td>7.152</td>
<td>9.11</td>
<td>2.50</td>
</tr>
<tr>
<td>19</td>
<td>20</td>
<td>50</td>
<td>3.25</td>
<td>3.15</td>
<td>7.152</td>
<td>9.11</td>
<td>2.50</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>60</td>
<td>3.25</td>
<td>2.24</td>
<td>5.086</td>
<td>6.48</td>
<td>2.50</td>
</tr>
<tr>
<td>21</td>
<td>20</td>
<td>50</td>
<td>3.25</td>
<td>2.24</td>
<td>5.086</td>
<td>6.48</td>
<td>3.75</td>
</tr>
<tr>
<td>22</td>
<td>20</td>
<td>50</td>
<td>3.25</td>
<td>1.60</td>
<td>3.633</td>
<td>4.63</td>
<td>3.75</td>
</tr>
<tr>
<td>23</td>
<td>20</td>
<td>50</td>
<td>3.25</td>
<td>1.25</td>
<td>2.183</td>
<td>2.78</td>
<td>2.50</td>
</tr>
<tr>
<td>24</td>
<td>20</td>
<td>50</td>
<td>3.25</td>
<td>1.25</td>
<td>2.183</td>
<td>2.78</td>
<td>2.50</td>
</tr>
<tr>
<td>25</td>
<td>12.5</td>
<td>50</td>
<td>3.25</td>
<td>1.60</td>
<td>5.037</td>
<td>6.42</td>
<td>2.50</td>
</tr>
<tr>
<td>26</td>
<td>12.5</td>
<td>40</td>
<td>3.25</td>
<td>1.60</td>
<td>5.037</td>
<td>6.42</td>
<td>2.50</td>
</tr>
<tr>
<td>27</td>
<td>12.5</td>
<td>50</td>
<td>3.25</td>
<td>1.60</td>
<td>4.000</td>
<td>5.10</td>
<td>2.50</td>
</tr>
<tr>
<td>28</td>
<td>12.5</td>
<td>40</td>
<td>3.25</td>
<td>1.60</td>
<td>5.125</td>
<td>5.98</td>
<td>2.50</td>
</tr>
<tr>
<td>29</td>
<td>12.5</td>
<td>50</td>
<td>3.25</td>
<td>1.25</td>
<td>3.125</td>
<td>3.98</td>
<td>2.50</td>
</tr>
<tr>
<td>30</td>
<td>12.5</td>
<td>40</td>
<td>3.25</td>
<td>1.25</td>
<td>3.125</td>
<td>3.98</td>
<td>2.50</td>
</tr>
<tr>
<td>31</td>
<td>12.5</td>
<td>50</td>
<td>3.25</td>
<td>1.00</td>
<td>2.500</td>
<td>3.18</td>
<td>2.50</td>
</tr>
<tr>
<td>32</td>
<td>12.5</td>
<td>40</td>
<td>3.25</td>
<td>1.00</td>
<td>2.500</td>
<td>3.18</td>
<td>2.50</td>
</tr>
<tr>
<td>33</td>
<td>2.5</td>
<td>40</td>
<td>3.25</td>
<td>1.60</td>
<td>5.976</td>
<td>7.61</td>
<td>2.50</td>
</tr>
<tr>
<td>34</td>
<td>10</td>
<td>40</td>
<td>3.25</td>
<td>1.25</td>
<td>3.591</td>
<td>4.58</td>
<td>2.50</td>
</tr>
<tr>
<td>35</td>
<td>10</td>
<td>40</td>
<td>3.25</td>
<td>1.00</td>
<td>2.873</td>
<td>3.66</td>
<td>2.50</td>
</tr>
<tr>
<td>36</td>
<td>10</td>
<td>40</td>
<td>3.25</td>
<td>1.00</td>
<td>2.873</td>
<td>3.66</td>
<td>2.50</td>
</tr>
<tr>
<td>37</td>
<td>9.5</td>
<td>28.5</td>
<td>3.25</td>
<td>1.60</td>
<td>5.19</td>
<td>6.61</td>
<td>2.50</td>
</tr>
<tr>
<td>38</td>
<td>9.5</td>
<td>28.5</td>
<td>3.25</td>
<td>1.25</td>
<td>2.81</td>
<td>3.58</td>
<td>2.50</td>
</tr>
<tr>
<td>39</td>
<td>9.5</td>
<td>28.5</td>
<td>3.25</td>
<td>1.00</td>
<td>2.09</td>
<td>2.66</td>
<td>2.50</td>
</tr>
<tr>
<td>40</td>
<td>6</td>
<td>25</td>
<td>3.25</td>
<td>1.60</td>
<td>7.551</td>
<td>9.62</td>
<td>2.50</td>
</tr>
<tr>
<td>41</td>
<td>6</td>
<td>25</td>
<td>3.25</td>
<td>1.25</td>
<td>4.887</td>
<td>6.21</td>
<td>2.50</td>
</tr>
<tr>
<td>42</td>
<td>6</td>
<td>25</td>
<td>3.25</td>
<td>1.00</td>
<td>3.901</td>
<td>4.97</td>
<td>2.50</td>
</tr>
<tr>
<td>43</td>
<td>5</td>
<td>20</td>
<td>3.25</td>
<td>1.00</td>
<td>5.008</td>
<td>6.89</td>
<td>2.50</td>
</tr>
<tr>
<td>44</td>
<td>3</td>
<td>15</td>
<td>1.50</td>
<td>1.00</td>
<td>4.278</td>
<td>5.45</td>
<td>2.50</td>
</tr>
</tbody>
</table>
5.2.2 Mass — The tolerance on nominal mass of expanded metal sheets shall be ±10 percent.

5.2.2.1 The nominal mass of expanded metal sheets shall be calculated on the basis that steel weighs 7650 kg/m².

5.2.3 Size of Mesh — The tolerances on sizes of mesh shall be as follows:

<table>
<thead>
<tr>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>On SWM</td>
</tr>
<tr>
<td>Up to 20 mm</td>
</tr>
<tr>
<td>Over 20 mm</td>
</tr>
<tr>
<td>On LWM</td>
</tr>
<tr>
<td>Up to 60 mm</td>
</tr>
<tr>
<td>Over 60 mm</td>
</tr>
</tbody>
</table>

6. SELECTION OF TEST SAMPLES

6.1 For every lot of 10 tonnes expanded metal sheets or less, two sheets shall be selected for bend test.

6.2 One bend test piece shall be cut from each of the two sheets.

6.2.1 The test piece shall preferably be cut from the edge of the sheet to avoid wastage.

7. PHYSICAL TESTS

7.1 Cold Bend Test — Cold bend test shall be carried out in accordance with IS:1692-1974*. The test piece (strands) cut from the meshes of expanded metal sheets shall withstand, without crack, being doubled over either by pressure or by blows from a hammer, until the two sides of the strands are parallel, and the internal radius of the bend is not greater than 1·5 times the thickness of the test piece.

8. RETESTS

8.1 Should any of the test pieces first selected fail to pass any of the tests specified, two further samples shall be selected for testing in respect of each failure. Should the test pieces from both of these additional samples pass, the material represented by the test samples shall be deemed to comply with the requirements of that particular test. Should the test pieces from either of these additional samples fail, the material represented by the test samples shall be liable for rejection.

9. FREEDOM FROM DEFECTS

9.1 The finished expanded metal sheets shall be free from flaws, joints, welds, broken strands, laminations and all other harmful surface defects.

*Method for simple bend testing of steel sheet and strip less than 3 mm thick (first revision).
IS: 412-1975

10. PRESERVATIVE TREATMENT

10.1 Expanded metal sheets shall be given a suitable protective coating to prevent corrosion.

11. PACKING

11.1 Unless specified otherwise by the purchaser, expanded metal sheets shall be supplied in rolls or with any other suitable packing that can withstand transit.

12. MARKING

12.1 Expanded metal sheets shall be securely bundled and a metal tag attached to each bundle and marked with manufacturer's name or trademark.

12.1.1 The product may also be marked with Standard mark.

12.1.2 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufactures or producers may be obtained from the Bureau of Indian Standards.
Steel Sheets Subcommittee, SMDC 5:3

Convenor

Prof S. S. Pani

Representing

Hindustan Steel Ltd (Rourkela Steel Plant),
Rourkela

Members

Assistant Director (MS)

Assistant Director Standards (B & S) - I (Alternate)

Shri D. D. Bhuptani

Indian Tube Co Ltd, Jamshedpur

Shri B. Chatterjee

J. K. Steel & Industries Ltd, Calcutta

Shri K. S. Bhargava (Alternate)

Shri Ranjee Dutt

Indo Japan Steels Ltd, Calcutta

Shri E. R. Gonda

Ahmedabad Advance Mills Ltd, Navasari

Shri S. V. Datar (Alternate)

Shri A. K. Guha

Directorate General of Supplies & Disposals,
New Delhi

Shri P. C. Mustafi (Alternate)

Shri A. K. Jee

Ministry of Defence (DGI)

Dr M. Khan

The Tata Iron & Steel Co Ltd, Jamshedpur

Dr D. M. Lakhiani

Indian Iron & Steel Co Ltd, Burnpur

Shri B. Kaul (Alternate)

Shri O. P. Midha

Atlas Cycle Industries Ltd, Sonepat

Shri Loke Nath Naskem (Alternate)

Dr Pranlal J. Patel

Graham Firth Steel Products (India) Ltd, Bombay

Dr K. K. Azizpuri (Alternate)

Representative

Co-ordinating Committee on Materials for
Automobiles, SMDC 31

Representative

Kamani Metals and Alloys Ltd, Bangalore
BUREAU OF INDIAN STANDARDS

Headquarters:
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones: 23230131, 23233375, 23239402 Fax: 91-011 23239399, 23239382
E - Mail : info@bis.org.in website : http://www.bis.org.in

Central Laboratory: Plot No. 20/9, Site IV, Sahibabad Industrial Area, SAHIBABAD 201010 Telephone 277 0032

Regional Offices:
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Kankurgachi, KOLKATA 700054
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113
†Western: Manakalaya, E9, MIDC, Behind Marol Telephone Exchange, Andheri (East), MUMBAI 400093

Branch Offices:
‘Pushpak’, Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 560 1348
Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 839 4955
Commercial-cum-Office Complex, Opp. Dushera Maidan, Arera Colony, Bittan Market, BHOPAL 462016
62-63, Ganga Nagar, Unit VI, BHUBANESHWAR 751001 240 3139
5th Floor, Kovai Towers, 44 Bala Sundaram Road, COIMBATORE 641018 221 0141
SCO 21, Sector 12, Faridabad 121007 229 2175
Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 286 1498
53/5 Ward No. 29, R.G. Barua Road, 5th By-lane, Apurba Sinha Path, GUWAHATI 781003 245 6508
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 2320 1084
Prithavi Raj Road, Opposite Bharat Overseas Bank, C-Scheme, JAIPUR 302001 222 3282
11/418 B Sarvodaya Nagar, KANPUR 208005 223 3012
Sethi Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001 261 8923
H. No. 15, Sector-3, PARWANOOR, Distt. Solan (H.P.) 173220 235 436
Plot No A-20-21, Institutional Area, Sector 62, Goutam Budh Nagar, NOIDA 201307 240 2206
Patliputra Industrial Estate, PATNA 800013 226 2808
Plot Nos. 657-660, Market Yard, Gultkdi, PUNE 411037 2427 4804
*Sahajanand House* 3rd Floor, Bhaktinagar Circle, 80 Feet Road, RAJKOT 360002 237 8251
T.C. No. 2/275 (1 & 2), Near Food Corporation of India, Kesavadasapuram-Ulloor Road, Kesavadasapuram, THIRUVANANTHAPURAM 695004 255 7914
1st Floor, Udyog Bhawan, VUDA, Siripuram Junction, VISHAKHAPATNAM-03 271 2833

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, KOLKATA 700072 355 3243
†Sales Office (WRO) Plot No. E-9, MIDC, Rd No. 8, Behind Telephone Exchange, Andheri (East), Mumbai-400 0093 2832 9295

Printed by the Manager, Government of India Press Faridabad, 2007