WELCOME
Presentation on
Concrete Cover Blocks
Marketed By
Pixel Trading And Solution
Based at
Cochin
www.pixelts.com
Functions of Concrete Cover

• For prevention of corrosion in rebars

• For providing proper bond to rebars

• Resisting fire
Effect of Improper Cover
The Problem

• Concrete Cover – Critical and often neglected aspect of construction

• Stone pieces, mosaic, marble or cudappah used as covering blocks

• Serve as improper cover
Draw Back of Site Made Cover Blocks

• Porous

• Allow ingress of water vapour and gases

• Strength below 10 MPa

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Mob.: 8089081528

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PVC Cover Blocks

- Does not bond with concrete
- Permit development of hair cracks
- Water vapour seeps to the reinforcement
- Melts in heat
- Release toxic carbon monoxide upon burning
- PVC cover made of recycled material deform during concreting
Effects of PVC Cover Block

Figure 5.9-2: Reinforcement corrosion initiated by aggressive substance penetrated through the void along a plastic spacer
Effects of PVC Cover Block

Corrosion at location of PVC Spacer
Ferry quay, West Coast of Norway, built in 1988
Photographed in 1997

Fig. 1. Ferry quay West Coast of Norway, built 1988
Corrosion at the location of the plastic spacer
Concrete Cover Blocks
The Proper Solution

• Concrete to concrete bond perfect hence no hair cracks

• Compressive strength not less than the surrounding concrete

• Low water absorption

• Sustains extreme heat

• No deformation during concreting, ensure proper cover and fixity to rebars

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Cover Blocks from Astra Concrete Products

• High Compressive Strength (not less than 60MPa)
• No deformation in heat, cold or during concreting
• Water penetration less than 1mm
• Rapid Chloride-Ion Penetration - Moderate
• Fire resistant (equally or above the surrounding concrete)
• Fiber reinforced for better strength

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Mob.: 8089081528

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Cover Blocks by Astra Concrete Products

- Comply and exceed German Regulations, 2002
- Confirms to BS 7973-1:2001
- Scientifically designed shapes to ensure compatibility
- Has a provision for inserting tying wire. Option of pre inserted G.I. wire available.
- Sizes available as described in IS:456-2000 and beyond

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Mob.: 8089081528

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Our Cover Blocks

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Our Cover Blocks
Our Cover Blocks

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Spacers Applications

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Spacers Applications

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Palarivattom, Cochin, 682025
Mob.: 8089081528

www.pixelts.com
# Single Spacers

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Cover Size (mm)</th>
<th>Max. Permissible Rebar Dia. (mm)</th>
<th>Min. Breaking Load (N)</th>
<th>Weight ht/100 (nos) (in kg.)</th>
<th>Packing per bag (in nos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS15</td>
<td>15</td>
<td>16</td>
<td>3000</td>
<td>1.4</td>
<td>1000</td>
</tr>
<tr>
<td>AS20</td>
<td>20</td>
<td>18</td>
<td>4300</td>
<td>2.2</td>
<td>1000</td>
</tr>
<tr>
<td>AS25</td>
<td>25</td>
<td>18</td>
<td>5400</td>
<td>3.0</td>
<td>500</td>
</tr>
<tr>
<td>AS30</td>
<td>30</td>
<td>30</td>
<td>5700</td>
<td>4.0</td>
<td>250</td>
</tr>
<tr>
<td>AS40</td>
<td>40</td>
<td>30</td>
<td>5800</td>
<td>6.4</td>
<td>250</td>
</tr>
<tr>
<td>AS50</td>
<td>50</td>
<td>40</td>
<td>6100</td>
<td>12.0</td>
<td>100</td>
</tr>
</tbody>
</table>

*Marketed By:* Pixel trading & Solutions
Palarivattom, Cochin, 682025
Mob.: 8089081528

[www.pixelts.com](http://www.pixelts.com)
# Multiple Cover Spacers

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Cover Size (mm)</th>
<th>Max. Permissible Rebar Dia. (mm)</th>
<th>Min. Breaking Load (N)</th>
<th>Weight ht/100 (nos) (in kg.)</th>
<th>Packing per bag (in nos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS3040</td>
<td>30</td>
<td>30</td>
<td>5100</td>
<td>7.2</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>30</td>
<td>5900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS3550</td>
<td>35</td>
<td>25</td>
<td>5400</td>
<td>10.0</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>40</td>
<td>5400</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>30</td>
<td>5600</td>
<td></td>
<td></td>
</tr>
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<td>50</td>
<td>40</td>
<td>5800</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Heavy Duty Spacers

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Cover Size (mm)</th>
<th>Max. Permissible Rebar Dia. (mm)</th>
<th>Min. Breaking Load (N)</th>
<th>Weight ht/100 pcs. (in kg.)</th>
<th>Packing per bag (in nos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH50</td>
<td>50</td>
<td>40</td>
<td>20000</td>
<td>30.0</td>
<td>50</td>
</tr>
<tr>
<td>AH60</td>
<td>60</td>
<td>40</td>
<td>30000</td>
<td>41.0</td>
<td>50</td>
</tr>
<tr>
<td>AH75</td>
<td>75</td>
<td>40</td>
<td>38000</td>
<td>58.0</td>
<td>25</td>
</tr>
<tr>
<td>AH100</td>
<td>100</td>
<td>40</td>
<td>48000</td>
<td>123.0</td>
<td>10</td>
</tr>
</tbody>
</table>

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Palarivattom, Cochin, 682025  
Mob.: 8089081528  

www.pixelts.com
# Circular Spacers

<table>
<thead>
<tr>
<th>Product</th>
<th>Product Code</th>
<th>Cover Size (mm)</th>
<th>Max. Permissible Rebar Dia. (mm)</th>
<th>Weight ht/100 (nos) (in kg.)</th>
<th>Packing per bag (in nos)</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR25</td>
<td>25</td>
<td>25</td>
<td>10</td>
<td>9.5</td>
<td>200</td>
<td>Column/Beam/Walls</td>
</tr>
<tr>
<td>AR30</td>
<td>30</td>
<td>30</td>
<td>10</td>
<td>13.5</td>
<td>100</td>
<td>Column/Beam/Walls</td>
</tr>
<tr>
<td>AR35</td>
<td>35</td>
<td>35</td>
<td>10</td>
<td>18.0</td>
<td>100</td>
<td>Column/Beam/Walls</td>
</tr>
<tr>
<td>AR40</td>
<td>40</td>
<td>40</td>
<td>10</td>
<td>22.5</td>
<td>100</td>
<td>Column/Beam/Walls</td>
</tr>
<tr>
<td>AR50</td>
<td>50</td>
<td>50</td>
<td>12</td>
<td>40.0</td>
<td>50</td>
<td>Pile Cap/Piles/Walls</td>
</tr>
<tr>
<td>AR75</td>
<td>75</td>
<td>75</td>
<td>12</td>
<td>74.0</td>
<td>20</td>
<td>Piles/Walls</td>
</tr>
</tbody>
</table>

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Mob.: 8089081528

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Fiber Concrete Spacers are preferred for:

**Rock Solid Strength**: Made under strict quality control. Compressive strength not less than 60 Mpa. Hence no deformation in Heat / cold.

**Precision**: Cast in precision dies. Ensures accurate dimensions, well under prescribed tolerances.

**Easy Identification**: Size of spacers is embossed on every piece. Hence, chances of errors are eliminated.

**Fire Resistance**: Made from high quality concrete, which is non combustible.

**Excellent Compatibility**: Concrete to concrete bond is perfect. No hair crack develop between the spacer and the surrounding concrete.

**Excellent Quality**: Manufactured in accordance with ISO 9001-2008.

**Low Permeability**: Tests on our spacers indicate low water and chloride iron penetration.

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Mob.: 8089081528

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<table>
<thead>
<tr>
<th>Prüfmerkmale</th>
<th>&quot;ASTRA&quot;</th>
<th>Istzustand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betondeckung:</td>
<td>50 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td>Schnittbreite:</td>
<td>- - -</td>
<td>28 mm</td>
</tr>
<tr>
<td>Radius für Betonstahl:</td>
<td>R10</td>
<td>R15</td>
</tr>
<tr>
<td>Abmessungen:</td>
<td>Ø40 × Ø30 mm × 55mm</td>
<td>44mm (Breite) × 54mm (Höhe)</td>
</tr>
<tr>
<td>Gewicht:</td>
<td>116 kg/1000 Stk.</td>
<td>108 kg/1000 Stk.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tragfähigkeit in N</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18000</td>
<td>8400</td>
</tr>
<tr>
<td></td>
<td>9600</td>
<td>9450</td>
</tr>
<tr>
<td></td>
<td>9230</td>
<td>9450</td>
</tr>
<tr>
<td></td>
<td>9600</td>
<td></td>
</tr>
</tbody>
</table>

| Prüfrundstahl:                      | Ø16mm   | Ø16mm                         |

<table>
<thead>
<tr>
<th>Feuchtegehalt in % nach:</th>
<th>30 min.</th>
<th>24 Std.</th>
<th>30 min.</th>
<th>24 Std.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,3</td>
<td>8,6</td>
<td>2,9</td>
<td>13,8</td>
</tr>
<tr>
<td></td>
<td>3,4</td>
<td>14,3</td>
<td>2,9</td>
<td>14,4</td>
</tr>
<tr>
<td></td>
<td>3,9</td>
<td>14,1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Test Certificate

**Goa Engineering College**

---

**Department of Civil Engineering**

**Goa College of Engineering**

(Government of Goa)

Farmagudi, Ponda- Goa – 403401

---

**Report No.** GEC/Civil/CON/10/10-11  
**Date:** 08/07/10

**Name and Address of the party:** Astra Concrete Products Madkaim - Goa.  
**Reference Letter No.** nil  
**Name of Work:** Testing of Concrete Cube...  
**Details of Payment:** Amount 331=0  
**Book No.** 52  
**Receipt No.** 43  
**Date:** 5/7/2010  
**Date of Completion of Testing Work:** 05/07/2010

---

**Concrete Laboratory Test Report**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Identification Mark</th>
<th>Date of Casting</th>
<th>Date of Testing</th>
<th>Compressive Strength (kg/cm²) 7.0x7.0cm</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.........</td>
<td>2/6/10</td>
<td>2/6/10</td>
<td>611.0 kg/cm²</td>
<td>Sample as supplied by the party in the lab.</td>
</tr>
<tr>
<td>2</td>
<td>.........</td>
<td>2/6/10</td>
<td>2/6/10</td>
<td>638.0 kg/cm²</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.........</td>
<td>2/6/10</td>
<td>2/6/10</td>
<td>591.0 kg/cm²</td>
<td></td>
</tr>
</tbody>
</table>

---

(Signature)  
(Dr. C.S. Gokhale)  
Head, Civil Engineering Department

(Signature)  
(Prof. S.B. Sheldar)  
Faculty In-charge

---

[Link: www.pixelts.com]
Test Certificate
Goa Engineering College

DEPARTMENT OF CIVIL ENGINEERING
GOA COLLEGE OF ENGINEERING
(GOVERNMENT OF GOA)
Farmagudi, Ponda-Goa - 403401

Faculty I/C: Ph: 91-0832-2336306 Cell: 09420976348 E-mail: gbe@gec.ac.in
Laboratory I/C: Ph: 91-0832-2336305 Cell: 09545425151 E-mail: cv@gec.ac.in
Head, CED: Ph: 91-0832-2336311 Cell: 09422061954 E-mail: ced@gec.ac.in
Principal: Ph: 91-0832-2336301 Fax: 91-0832-2333021 GRAM: ENGICO

Report No. GEC/Civil/CON-12-13 Date: 4/04/12
Name and Address of the party: Astra Concrete Products Madhav - Goa.
Reference Letter: Nil
Details of payment: Amount: 351+12 Book No. 76 Receipt No. 12 Date: 03/04/12
Date of Completion of Testing Work: 03/04/12

CONCRETE LABORATORY TEST REPORT:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Identification Mark</th>
<th>Date of Casting</th>
<th>Date of Testing</th>
<th>Comp. Strength in N/mm² (10x10) cm</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>—</td>
<td>07/03/12</td>
<td>07/03/12</td>
<td>71.0 N/mm²</td>
<td>Sample Supplied by the Party.</td>
</tr>
<tr>
<td>2</td>
<td>—</td>
<td>07/03/12</td>
<td>07/03/12</td>
<td>64.0 N/mm²</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>—</td>
<td>07/03/12</td>
<td>07/03/12</td>
<td>68.5 N/mm²</td>
<td></td>
</tr>
</tbody>
</table>

(Dr. C.S. Gokhale)
Head, Civil Engineering Department

(Prof. Ganesh Hegde)
Faculty In-Charge
Letter from a consulting engineer in The Netherlands

My congratulations! You really produce a product which not only visually gives a very good impression but also qualitywise!

I asked the testinstitute to take into account the German regulations (2002) with regard to compressability, water intake and frost/thaw. (According to this regulations we need 2000 Newton). I also asked, if possible, to compare the Astra products with other high quality products on the market in order to give me an indication where we should position Astra.

The results:

<table>
<thead>
<tr>
<th></th>
<th>Comp.in Kg/ Newton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td>Astra</td>
</tr>
<tr>
<td>Astra 50 MM</td>
<td>2.000</td>
</tr>
<tr>
<td>30/30/40</td>
<td>2.000</td>
</tr>
<tr>
<td>25 MM</td>
<td>2.000</td>
</tr>
<tr>
<td>20 MM</td>
<td>2.000</td>
</tr>
</tbody>
</table>

In addition: the permeability after 24 hours in water of the Astra products is above what is minimally required and better than that of the compared competing products.
# ACC Water Permeability Test Report

## ACCCL Research & Development Centre
Concrete Technology Laboratory
ACC Thane Complex, 05 Mary, Near Teerth Halls, Thane 400604
Phone: 022-5301 7701 / 7702 / 7704

<table>
<thead>
<tr>
<th>Doc.No</th>
<th>ACCCL/R&amp;D/FR/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rev.No</td>
<td>0</td>
</tr>
<tr>
<td>Date of Rev.</td>
<td>01.06.09</td>
</tr>
<tr>
<td>Page No.</td>
<td>01 of 01</td>
</tr>
</tbody>
</table>

### Sample particulars:
- **Identification mark**: ACCCL/R&D/CC/08 E, ACCCL/R&D/CC/09 F, ACCCL/R&D/CC/05 G
- **Description, if any**: Concrete Sample
- **Sample ID**: ACCCL/R&D/CC/05 E, ACCCL/R&D/CC/09 F, ACCCL/R&D/CC/05 G
- **Date of Casting**: 34.01.2011

### Test Results

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Characteristics</th>
<th>Unit</th>
<th>Test Method</th>
<th>Testing Date</th>
<th>Sample ID</th>
<th>Test Result</th>
<th>Average Depth of Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Water Permeability (Depth of Penetration)</td>
<td>mm</td>
<td>DIN 1048 (Part 3)</td>
<td>25.02.2011</td>
<td>ACCCL/R&amp;D/CC/05 E</td>
<td>1.00</td>
<td>0.67</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ACCCL/R&amp;D/CC/05 F</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ACCCL/R&amp;D/CC/05 G</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:
- This certificate refers only to the sample submitted for testing.
- Any correction invalidates this certificate.
- This certificate may not be reproduced in part, without the permission of the laboratory.

Prepared & verified by:

Name & Designation: Soumya Gupta
Aest. Manager - Quality

Name & Designation: Abhishek Bhattacharya
AGM - Concrete Technology
ACC Rapid Chloride-Ion Penetration Test

ACCL Research & Development Centre
Concrete Technology Laboratory

Test Certificate No: ACCCL/R&D/2011/05-2
Issue Date: 01.02.2011
Name & Client Address: Astha Concrete Products
8 - 10, Mahakarn Industrial Estate,
Mahakarn – Goa, 403404

Sample particulars:
(i) Identification Mark: ACCCL/R&D/CC/05-H
(ii) Description: Concrete Mix ACCCL/R&D/CC/05-H
(iii) Quantity: 1 Cube
(iv) Name of test: Rapid Chloride Penetration Test
(v) Date of receipt: 09.02.2011
R&D centre Job request no: ACCCL/R&D/2011/05
Date of testing: 24.02.2011

Test Results:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sample ID</th>
<th>Casting Date</th>
<th>Testing Date</th>
<th>Charge Passed (millimeters)</th>
<th>As per ASTM C 1202 Chloride Ion Penetration Based on Charged Passed</th>
</tr>
</thead>
</table>
| 1       | ACCCL/R&D/CC/05-H | 24.02.2011   | 24.02.2011   | 3354                        | Charge Passed (millimeters): 3354, Chloride Ion Penetration: High

Interpretations and remarks:
Chloride Ion Penetration Based on Charged Passed in Moderate

Remarks:
(i) This certificate refers only to the sample submitted for testing.
(ii) Any alteration invalidates this certificate.
(iii) This certificate may not be reproduced in part, without the permission of the laboratory.

Prepared & verified by: [Signature]

Name: Soumya Gupta
Designation: Astm. Manager - Quality

Name & Designation: Abhishek Bhattacharya

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Presently Using This product

- L&T E.C.C. Division, Mumbai & Gujarat
- L&T Infrastructure for MMRDA Monorail, Mumbai
- Lodha World One, Mumbai
- K. Raheja, Mumbai
- Chettinad Builders Pvt. Ltd., Chennai

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Other Users of This product

- ACC Cement Ltd., Karnataka
- Sobha Developers, Pune, Mysore & Chennai
- IVRCL Infrastructures, Projects at Mumbai & Goa
- Exported to Kuwait, U.A.E., New Zealand, Qatar and Saudi Arabia
Summary

• Cover in concrete structure is most important.

• It makes the structure durable and safe.

• Use high strength precast concrete cover blocks whose compressive strength is not less than that of surrounding concrete.

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Thank you

Have a nice time

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