



# IBOCO® Wire Duct – Solid Wall

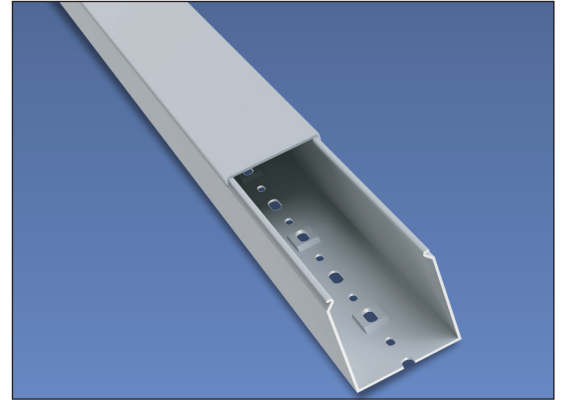
## Rigid PVC - Solid Wall - TSH Series

### Overview

With all the standard features of the T1 Series slotted wire duct, TSH series solid wall wire duct is made of rigid PVC that carries a UL 94V-0 flammability rating. It is available in 6.56 ft [2m] length and supplied complete with cover, and replacement covers can be purchased separately.

### Features

- Standard mounting holes
- Non-slip cover
- Flush cover design holds 10–12% more wires than traditional designs
- Rivets R6 and R4 may be used to mount on panel
- Recess bosses in the base allow rapid mounting of wire retainers (CL series), inserts (ZP2) and separators (SEP series) inside the wire duct.
- Duct base perforation according to DIN 43659 and DIN VDE 0660 TEIL 506



UL file E123572

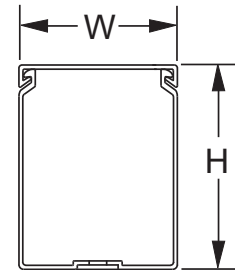


### Gray Rigid PVC Solid Wall - TSH Series

| Part Number                 | Qty | Price   | Actual Size (WxH)<br>inches [mm] | Length<br>ft [m] | Drawing<br>Link     |
|-----------------------------|-----|---------|----------------------------------|------------------|---------------------|
| <a href="#">TSH-0506G-1</a> | 1   | \$16.50 | 0.60 x 0.71 [15 x 18]            | 6.56 [2]         | <a href="#">PDF</a> |
| <a href="#">TSH-1010G-1</a> | 1   | \$20.50 | 1.00 x 1.18 [25 x 30]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-1015G-1</a> | 1   | \$25.50 | 1.00 x 1.57 [25 x 40]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-1515G-1</a> | 1   | \$28.00 | 1.57 x 1.57 [40 x 40]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-2222G-1</a> | 1   | \$31.50 | 2.36 x 2.36 [60 x 60]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-2230G-1</a> | 1   | \$38.50 | 2.36 x 3.15 [60 x 80]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-3030G-1</a> | 1   | \$49.00 | 3.15 x 3.15 [80 x 80]            |                  | <a href="#">PDF</a> |
| <a href="#">TSH-4040G-1</a> | 1   | \$62.00 | 3.94 x 3.94 [100 x 100]          |                  | <a href="#">PDF</a> |

Cover included.

### Dimensions




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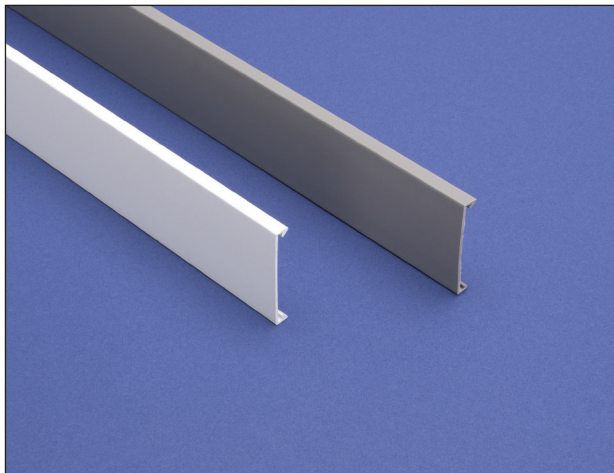
# Wire Duct Wire Fill Capacity

## Wire Fill Capacity

| T1, T1E, TSH Series Wire Fill Capacity                                            |                      |          |          |          |          |          |
|-----------------------------------------------------------------------------------|----------------------|----------|----------|----------|----------|----------|
| Nominal Duct Size<br>(inches)                                                     | Wire Gauge           |          |          |          |          |          |
|                                                                                   | 12AWG                | 14AWG    | 16AWG    | 18AWG    | 22AWG    |          |
|                                                                                   | Insulation Thickness |          |          |          |          |          |
|                                                                                   | 1/32                 | 3/64     | 1/32     | 1/32     | 1/32     | 1/64     |
|                                                                                   | OD-0.158             | OD-0.165 | OD-0.139 | OD-0.125 | OD-0.113 | OD-0.065 |
| Recommended Maximum Number of Wires per Wire Duct<br>(based on 50% fill capacity) |                      |          |          |          |          |          |
| 1/2 x 5/8                                                                         | 7                    | 6        | 9        | 11       | 14       | 43       |
| 1/2 x 1                                                                           | 12                   | 11       | 16       | 20       | 24       | 74       |
| 1 x 1                                                                             | 22                   | 21       | 29       | 36       | 44       | 134      |
| 1 x 1 1/2                                                                         | 31                   | 28       | 39       | 48       | 59       | 180      |
| 1 x 2 1/4                                                                         | 45                   | 40       | 57       | 71       | 85       | 261      |
| 1 x 3                                                                             | 59                   | 53       | 75       | 92       | 113      | 341      |
| 1 x 4                                                                             | 72                   | 66       | 93       | 115      | 141      | 426      |
| 1 1/2 x 1 1/2                                                                     | 51                   | 46       | 65       | 81       | 99       | 299      |
| 1 1/2 x 2 1/4                                                                     | 77                   | 70       | 98       | 121      | 148      | 449      |
| 1 1/2 x 3                                                                         | 102                  | 92       | 130      | 160      | 196      | 593      |
| 1 1/2 x 4                                                                         | 125                  | 113      | 159      | 197      | 241      | 729      |
| 2 1/4 x 1 1/2                                                                     | 78                   | 70       | 99       | 123      | 150      | 453      |
| 2 1/4 x 2 1/4                                                                     | 114                  | 103      | 146      | 180      | 221      | 667      |
| 2 1/4 x 3                                                                         | 156                  | 141      | 199      | 246      | 302      | 912      |
| 2 1/4 x 4                                                                         | 194                  | 176      | 247      | 306      | 375      | 1132     |
| 3 x 1 1/2                                                                         | 105                  | 95       | 134      | 165      | 203      | 612      |
| 3 x 2 1/4                                                                         | 159                  | 144      | 203      | 251      | 307      | 928      |
| 3 x 3                                                                             | 214                  | 193      | 272      | 337      | 412      | 1246     |
| 3 x 4                                                                             | 267                  | 242      | 341      | 421      | 515      | 1558     |
| 3 x 5                                                                             | 309                  | 283      | 399      | 493      | 604      | 1826     |
| 4 x 1 1/2                                                                         | 132                  | 120      | 169      | 208      | 255      | 771      |
| 4 x 2 1/4                                                                         | 201                  | 182      | 256      | 316      | 387      | 1171     |
| 4 x 3                                                                             | 270                  | 244      | 344      | 425      | 520      | 1573     |
| 4 x 4                                                                             | 336                  | 305      | 429      | 531      | 650      | 1963     |
| 4 x 5                                                                             | 415                  | 381      | 536      | 663      | 812      | 2455     |
| 6 x 4                                                                             | 512                  | 464      | 653      | 807      | 988      | 2987     |



# IBOCO® Wire Duct – Covers



## Duct Cover

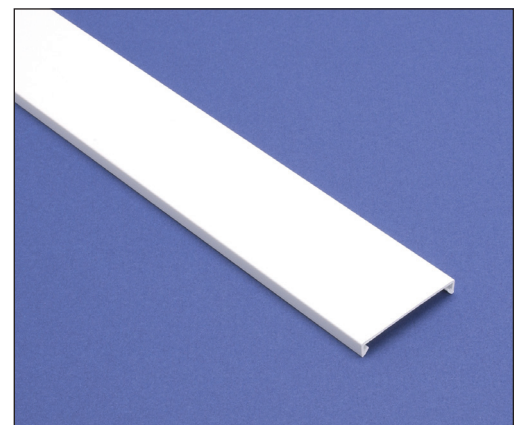
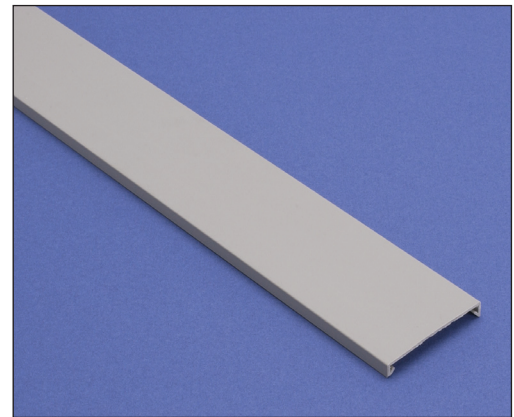
Our standard wire duct products are supplied complete with covers. These replacement covers are manufactured from the same rigid self-extinguishing PVC material.

UL Recognized file # E123572



### Duct Cover Specifications

| Part Number                      | Price   | Description               | Color | Qty | Actual Total Length ft [m] |
|----------------------------------|---------|---------------------------|-------|-----|----------------------------|
| <a href="#"><u>COV-05G-1</u></a> | \$5.00  | Cover for 0.5" wide duct  | Gray  | 1   | 6.56 [2]                   |
| <a href="#"><u>COV-10G-1</u></a> | \$5.00  | Cover for 1.0" wide duct  | Gray  | 1   |                            |
| <a href="#"><u>COV-10W-1</u></a> | \$5.00  | Cover for 1.0" wide duct  | White | 1   |                            |
| <a href="#"><u>COV-15G-1</u></a> | \$6.50  | Cover for 1.5" wide duct  | Gray  | 1   |                            |
| <a href="#"><u>COV-15W-1</u></a> | \$6.50  | Cover for 1.5" wide duct  | White | 1   |                            |
| <a href="#"><u>COV-22G-1</u></a> | \$8.25  | Cover for 2.25" wide duct | Gray  | 1   |                            |
| <a href="#"><u>COV-22W-1</u></a> | \$8.25  | Cover for 2.25" wide duct | White | 1   |                            |
| <a href="#"><u>COV-30G-1</u></a> | \$12.00 | Cover for 3.0" wide duct  | Gray  | 1   |                            |
| <a href="#"><u>COV-30W-1</u></a> | \$12.00 | Cover for 3.0" wide duct  | White | 1   |                            |
| <a href="#"><u>COV-40G-1</u></a> | \$14.50 | Cover for 4.0" wide duct  | Gray  | 1   |                            |
| <a href="#"><u>COV-40W-1</u></a> | \$14.50 | Cover for 4.0" wide duct  | White | 1   |                            |
| <a href="#"><u>COV-60G-1</u></a> | \$28.00 | Cover for 6.0" wide duct  | Gray  | 1   |                            |
| <a href="#"><u>COV-60W-1</u></a> | \$28.00 | Cover for 6.0" wide duct  | White | 1   |                            |



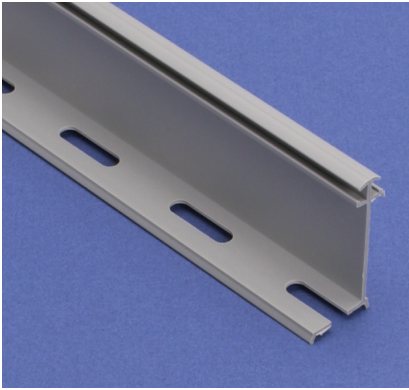
Note: Standard length of covers is 6.56 feet [2m] to fit T1, T1E, and TSH duct.


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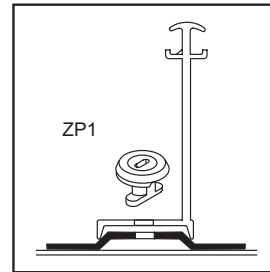
# Wire Duct – Accessories

## Duct Separators

Duct separators allow the physical separation of circuits within a single piece of duct. The various mounting arrangements allow alternate compartmentalization of duct and differing ratios of usable sections.



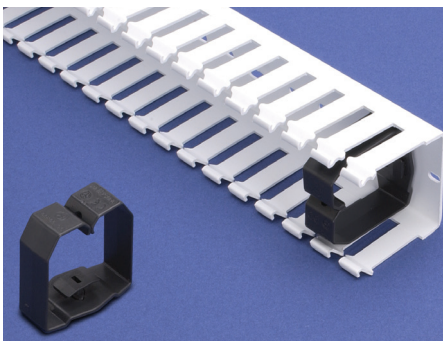
| Duct Separators                  |         |                               |       |     |               |                            |
|----------------------------------|---------|-------------------------------|-------|-----|---------------|----------------------------|
| Part Number                      | Price   | Description                   | Color | Qty | Length ft [m] | Drawing Link               |
| <a href="#"><u>SEP-15E-1</u></a> | \$8.25  | Separator for 1.5" high duct  | Gray  | 1   | 6.56 [2]      | <a href="#"><u>PDF</u></a> |
| <a href="#"><u>SEP-22E-1</u></a> | \$11.00 | Separator for 2.25" high duct | Gray  | 1   |               | <a href="#"><u>PDF</u></a> |
| <a href="#"><u>SEP-30E-1</u></a> | \$12.00 | Separator for 3.0" high duct  | Gray  | 1   |               | <a href="#"><u>PDF</u></a> |



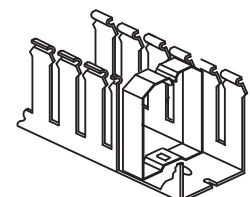
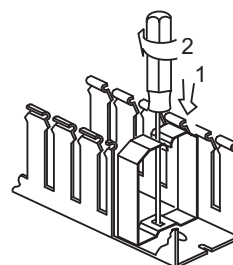
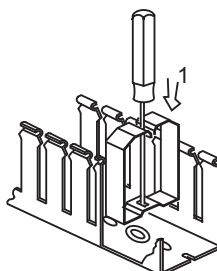
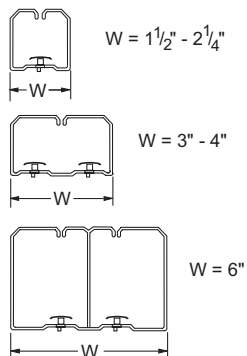
**SEP-E Mounting Detail**  
Order **ZP1** mount separately

## Wire Retainers

For holding wires during wiring operations, these retainers are essential. They allow easy access to the interior of the wire duct during maintenance or alterations, while assuring that wiring bundles will not fall out when the duct cover is removed. Installed with a simple rotating movement, they anchor firmly in the recess boss in the duct base.



| Wire Retainers                 |         |                                              |       |     |
|--------------------------------|---------|----------------------------------------------|-------|-----|
| Part Number                    | Price   | Description                                  | Color | Qty |
| <a href="#"><u>CL-1515</u></a> | \$69.00 | Wire retainer fastener for 1.5 x 1.5" duct   | Black | 40  |
| <a href="#"><u>CL-1522</u></a> | \$73.00 | Wire retainer fastener for 1.5 x 2.25" duct  |       | 40  |
| <a href="#"><u>CL-1530</u></a> | \$42.00 | Wire retainer fastener for 1.5 x 3.0" duct   |       | 20  |
| <a href="#"><u>CL-2215</u></a> | \$80.00 | Wire retainer fastener for 2.25 x 1.5" duct  |       | 40  |
| <a href="#"><u>CL-2222</u></a> | \$45.00 | Wire retainer fastener for 2.25 x 2.25" duct |       | 20  |
| <a href="#"><u>CL-2230</u></a> | \$46.00 | Wire retainer fastener for 2.25 x 3.0" duct  |       | 20  |
| <a href="#"><u>CL-2240</u></a> | \$51.00 | Wire retainer fastener for 2.25 x 4.0" duct  |       | 20  |
| <a href="#"><u>CL-3022</u></a> | \$28.00 | Wire retainer fastener for 3.0 x 2.25" duct  |       | 10  |
| <a href="#"><u>CL-3030</u></a> | \$31.50 | Wire retainer fastener for 3.0 x 3.0" duct   |       | 10  |
| <a href="#"><u>CL-3040</u></a> | \$31.50 | Wire retainer fastener for 3.0 x 4.0" duct   |       | 10  |
| <a href="#"><u>CL-4022</u></a> | \$35.00 | Wire retainer fastener for 4.0 x 2.25" duct  |       | 10  |
| <a href="#"><u>CL-4030</u></a> | \$31.50 | Wire retainer fastener for 4.0 x 3.0" duct   |       | 10  |
| <a href="#"><u>CL-4040</u></a> | \$21.50 | Wire retainer fastener for 4.0 x 4.0" duct   |       | 5   |
| <a href="#"><u>CL-6040</u></a> | \$26.50 | Wire retainer fastener for 6.0 x 4.0" duct   |       | 5   |



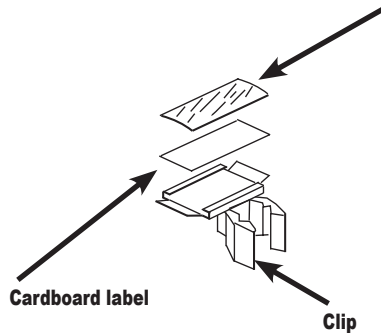

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# Wire Duct – Accessories

## Duct Marking Tags

| Part Number | Price   | Description                                                                                                                                    | Qty |
|-------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>DM1</b>  | \$31.00 | Single-width white cardboard identification label for wire duct. Supplied with black plastic mounting clip and transparent plastic cover slide | 50  |

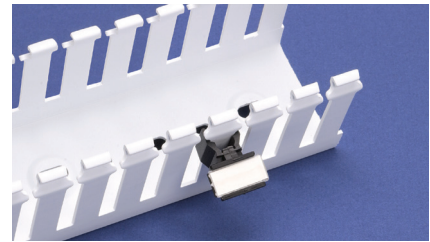
Note: **DM1** marking tags can only be used with T1 series wire duct.



## Identification Tags

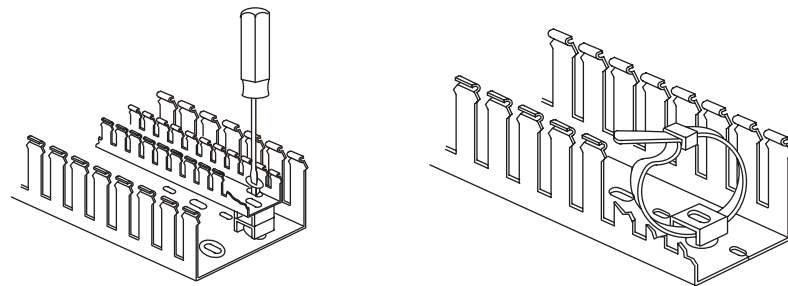
Allowing easy identification of control gear and switchgear, these tags are mounted by snapping the clip onto the sidewall finger segments of the duct. No gluing - no drilling! After installation, they need not be removed during maintenance or any work which involves the removal of the covers.

Note: Take care that clip is installed above the wires coming out to the sidewall slots.



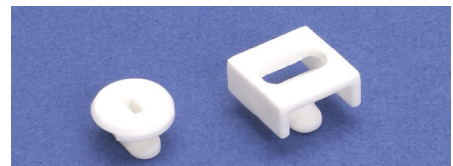
## Mounting Devices

| Part Number | Price   | Description                                                                          | Qty |
|-------------|---------|--------------------------------------------------------------------------------------|-----|
| <b>ZP1</b>  | \$16.50 | Round, white polyamide 'button' used to mount components and separators inside duct. | 100 |
| <b>ZP2</b>  | \$20.00 | Square white polyamide cable tie mount used to tighten a wire bundle inside duct.    | 50  |



## Mounting Inserts

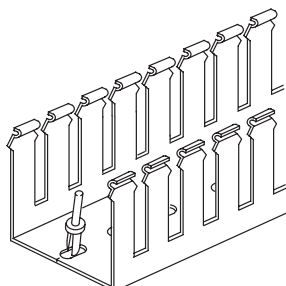
We carry mounts in two styles: ZP1 for mounting components and SEP-E separators inside duct, or for mounting small sizes of duct inside larger sizes (for separation of circuits with different functions); and ZP2, which is used with a cable tie to secure a wire bundle inside the duct.



## Wire Duct Rivets and Rivet Tools

| Part Number | Price   | Description                                                                                                   | Qty |
|-------------|---------|---------------------------------------------------------------------------------------------------------------|-----|
| <b>R4*</b>  | \$19.00 | Blue polyamide rivet used to install all types of wire duct with standard 4.5 mm [0.17 in] mounting holes.    | 250 |
| <b>B4</b>   | \$50.00 | Red polyamide rivet tool used to install R4 rivets.                                                           | 1   |
| <b>R6*</b>  | \$22.00 | Natural polyamide rivet used to install all types of wire duct with standard 6.5 mm [0.26 in] mounting holes. | 250 |
| <b>B6</b>   | \$50.00 | Yellow polyamide rivet tool used to install R6 rivets.                                                        | 1   |

\* R4 drill hole size - 5/32" (4mm), R6 drill hole size - 7/32" [5.5 mm]  
When using with Flexible wire duct, only the R4 rivet will currently work.



## Rivets and Rivet Tools

Wire duct rivets install quickly and easily with the companion rivet tool, offering good temperature resistance and excellent mechanical properties. They can be used to install all types of wire duct with standard mounting holes.




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# Wire Duct – Material Specifications

| Material Specifications            |               |                 |                    |                  |                       |                       |                     |                              |
|------------------------------------|---------------|-----------------|--------------------|------------------|-----------------------|-----------------------|---------------------|------------------------------|
| Materials                          | Test Standard | Unit of Measure | Rigid PVC          | Polypropylene    | PVC Molded Components | Polyamide 6           | Polyethylene        | Flame Retardant Polyethylene |
| Technical Characteristics          |               |                 |                    |                  |                       |                       |                     |                              |
| Chemical/Physical Properties       |               |                 |                    |                  |                       |                       |                     |                              |
| Specific Gravity                   | ASTM D792     | g/cm³           | 1.55               | 1.01             | 1.32                  | 1.14                  | 0.92                | 0.97                         |
| H <sub>2</sub> O 73.4°F Absorption | ISO 62        | %               | < 0.1              | 0.02             | < 0.1                 | 2.5                   | < 0.1               | < 0.1                        |
| Formaldehyde                       | –             | ppm             | absent             | absent           | absent                | absent                | absent              | absent                       |
| Cadmium                            | –             | ppm             | absent             | absent           | absent                | absent                | absent              | absent                       |
| Mechanical Properties              |               |                 |                    |                  |                       |                       |                     |                              |
| Tensile Stress at Break            | ASTM D638     | MPa             | 39                 | 28               | 30                    | 45                    | 17                  | 15                           |
| Traction Strength                  | ASTM D638     | MPa             | 44                 | 27               | 27                    | 55                    | 9.5                 | 9                            |
| Elongation at Break                | ASTM D638     | %               | 130                | 200              | 97                    | 250                   | 400                 | 600                          |
| Modulus of Elasticity at Traction  | ASTM D638     | MPa             | 4400               | n/a              | –                     | 950                   | –                   | 240                          |
| Modulus of Elasticity at Flexion   | ASTM D790     | MPa             | 3200               | 2100             | –                     | 1100                  | 210                 | 130                          |
| Thermal Properties                 |               |                 |                    |                  |                       |                       |                     |                              |
| Temperature VICAT                  | ASTM D1525    | °C              | 84                 | 95               | 70                    | 198                   | 89                  | –                            |
| HDT                                | ASTM D648     | °C              | 72                 | 60               | 60                    | 185                   | –                   | –                            |
| Coefficient of Expansion           | ASTM D696     | K <sup>-1</sup> | 6x10 <sup>-5</sup> | 10 <sup>-5</sup> | 8x10 <sup>-5</sup>    | 8-10x10 <sup>-5</sup> | 22x10 <sup>-5</sup> | 10 <sup>-5</sup>             |
| Specific Heat                      | ASTM C351     | kJ/kgK          | 0.94               | n/a              | 1.24                  | 1.7                   | –                   | –                            |
| Thermal Conductivity               | ASTM C177     | W/mK            | 0.14               | 0.21             | 0.14                  | 0.29                  | 0.32                | 0.32                         |
| Electrical Properties              |               |                 |                    |                  |                       |                       |                     |                              |
| Dielectric Constant                | ASTM D150     | –               | 3.2 - 4.0          | 2.5              | 3.2                   | 5.0                   | 2.4                 | 2.3                          |
| Dielectric Strength                | IEC 243       | kV/mm           | 70                 | 25               | 60                    | 35                    | 90                  | 90                           |
| Surface Resistance                 | IEC 93        | Ω               | 10 <sup>13</sup>   | 10 <sup>13</sup> | 10 <sup>13</sup>      | 5x10 <sup>11</sup>    | 10 <sup>13</sup>    | 10 <sup>13</sup>             |
| Self-Extinguishing                 |               |                 |                    |                  |                       |                       |                     |                              |
| Self-Extinguishing UL 94 1.6 mm    | UL 94         | –               | V-0                | V-0              | V-0                   | V-2                   | HB                  | V-2                          |
| Self-Extinguishing UL 94 3.2 mm    | UL 94         | –               | V-0                | V-0              | V-0                   | V-2                   | HB                  | V-2                          |
| Hot Wire Test (2 mm)               | IEC 695-2-1   | °C              | 960                | 960              | 960                   | 650                   | 650                 | 850                          |
| Oxygen Number                      | ASTM D2863    | %               | 43                 | 30               | 34                    | 25                    | –                   | 25                           |