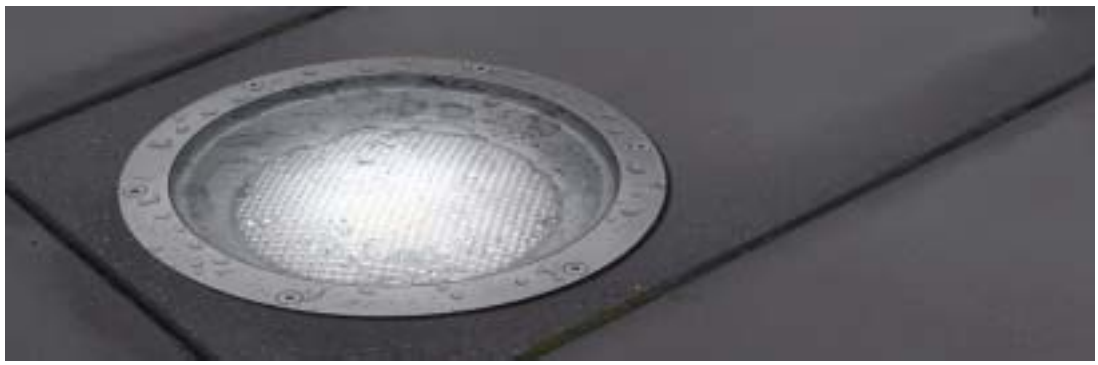
martinarchitectural

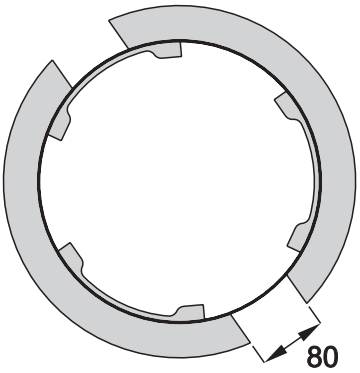
Inground 200

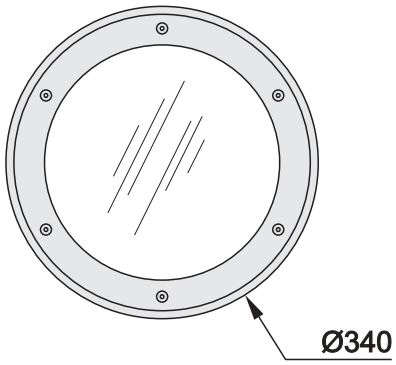


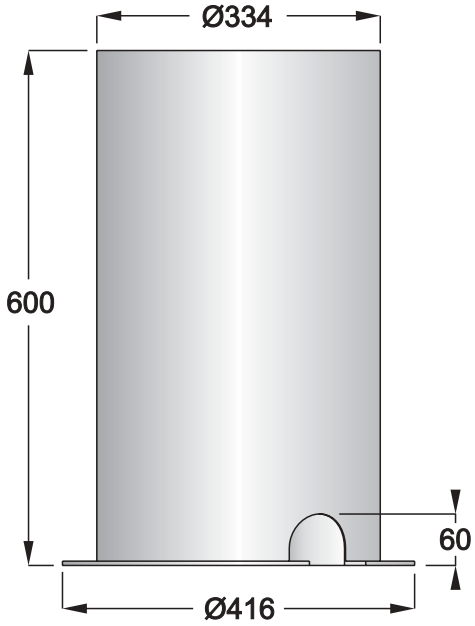
Installation Guide

Dimensions

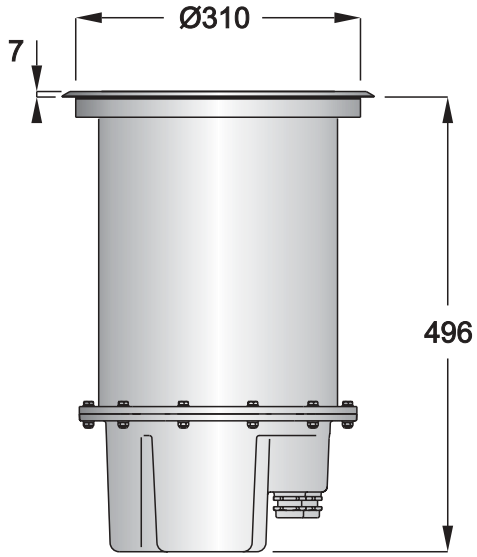
Measurements are in millimeters







Installation sleeve



Inground 200

Printed in Denmark.

P/N 35000151, Rev C

Contents

1. Introduction

Thank you for selecting the Martin Inground 200, a 150 watt uplight designed for exterior burial installation.

This Installation Guide describes how to:

- prepare groundwork (installation well, etc.) before installation
- connect cables
- adjust the beam angle and have the Inground 200 ready for operation

For details of *operating* the Inground 200, please refer to the User Manual shipped with the product. The most recent versions of the User Manual and this Installation Guide are also available in the Support area of the Martin Architectural website at http://www.martin-architectural.com

Included items

The Inground 200 is supplied with the following items:

- Philips CDM-SA/T 150W/942 lamp
- 4 blanking plugs for cable entry holes
- 2 stainless steel IP68 cable glands for AC power cable entry (M25 x 1.5; designed for cable Ø13-17mm / Ø 0.51-0.67 in.)
- Installation guide
- User manual

Inground 200 6 Color and Full Spectrum CMY models are also supplied with the following items:

- 2 stainless steel IP68 cable glands for control cable entry (M16 x 1.5; designed for cable Ø 5-9mm / Ø 0.2-0.35 in.)

2. Safety precautions

Warning! ***This product is not for household use. Installation of the Inground 200 may only be carried out by qualified professionals.***

This product presents risks of lethal or severe injury due to fire and heat, electric shock and lamp explosion.

Read this guide before installing the fixture. Follow all safety precautions listed in this guide. Observe all warnings in this guide and on the fixture.

Before attempting to operate the Inground 200, refer to the User Manual supplied with the product. The User Manual is also available in the Support area of the Martin Architectural website at http://www.martin-architectural.com

If you have questions about how to install the fixture safely, please contact your Martin Architectural dealer or call the Martin 24-hour service hotline on +45 70 200 201.

Eliminating fire risk

The Inground 200 must be installed:

- Outdoors or in a well-ventilated area.

- At least 0.5 meters (20 inches) away from the surface to be illuminated.
- At least 1 meter (40 inches) away from any combustible materials.

Ensure that:

- Litter, dry leaves or other combustible materials cannot accumulate on or near the fixture.
- Vehicles or other fire risks cannot be left unattended over or near the fixture. This is particularly important in situations where a vehicle may be left unattended over or near an unlit fixture which is later switched on.

Protecting the public

To avoid injury to members of the public, install the Inground 200:

- In an area where accidental contact with the front glass is unlikely, since the Inground 200 becomes hot during normal operation.
- Flush with the surrounding surface, so as to eliminate any obstacle to pedestrians that might result in falls or injuries.
- With an anti-skid front glass (available from Martin Architectural dealers, p/n 91611198) in pedestrian traffic areas.

Ensure all local safety regulations and legal requirements are observed, and take appropriate measures to warn or restrict access. To avoid accidents during installation or service, restrict access to the site and place both warning notices and barriers around all work areas until work is completed and all covers, etc. are correctly in place.

3. Installation procedure

A suggested procedure for installing the Inground 200 involves two phases:

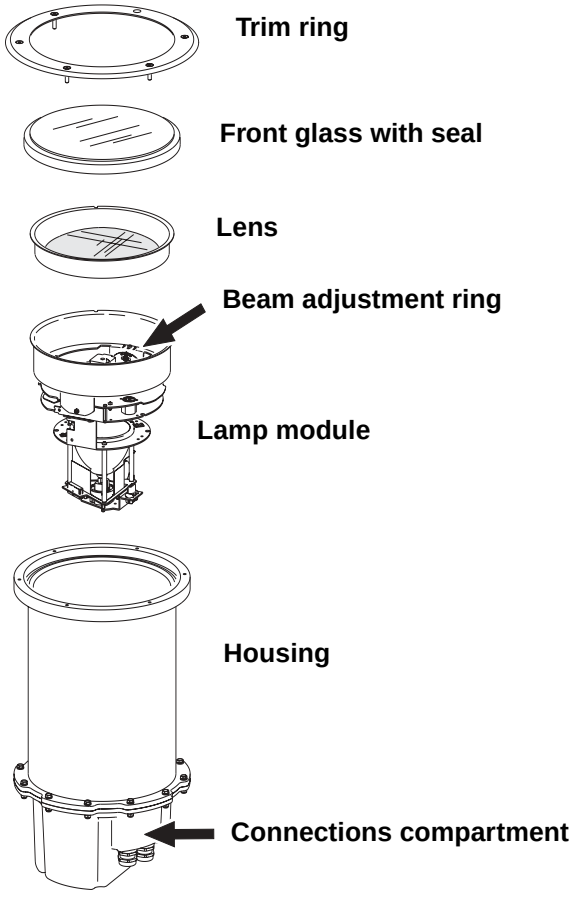
1. Pre-installation

1. Ensure that a plan is available with details of site layout, beam aiming, power supply and control, etc.
2. Prepare installation wells and cabling.
   – *see "Groundwork"* on page 8
3. If an installation sleeve is to be used, fit and secure this.
   – *see "1. Installation sleeve"* on page 9

2. Installation

1. Remove internal components and prepare for cable connection.
   – *see “Component removal & reinstallation”* on page 18
2. Connect cables.
   – *see “Connecting power supply cables”* on page 12 *and “Connecting control data cables”* on page 14.
3. Replace internal components and install housing in installation well or sleeve.
   – *see “Component removal & reinstallation”* on page 18
4. Apply power.
   – *see “Powering on for the first time”* on page 15
5. Adjust beam and refit lens and front glass.
   – *see “Beam adjustment”* on page 16

4. Exploded view



5. Groundwork

This section describes how to install the Inground 200 either directly in the ground or in an installation sleeve.

Warning! ***All electrical system installation must be performed by qualified professionals.***

It is the installer's responsibility to ensure that all national safety regulations and legal requirements are followed when installing the Inground 200.

Choosing a location

Safety

The Inground 200 must be installed in a location that meets the safety standards listed under *"Safety precautions"* on page 5. It is the installer's responsibility to ensure that all local safety regulations and legal requirements are observed.

Stability and weight-bearing capacity

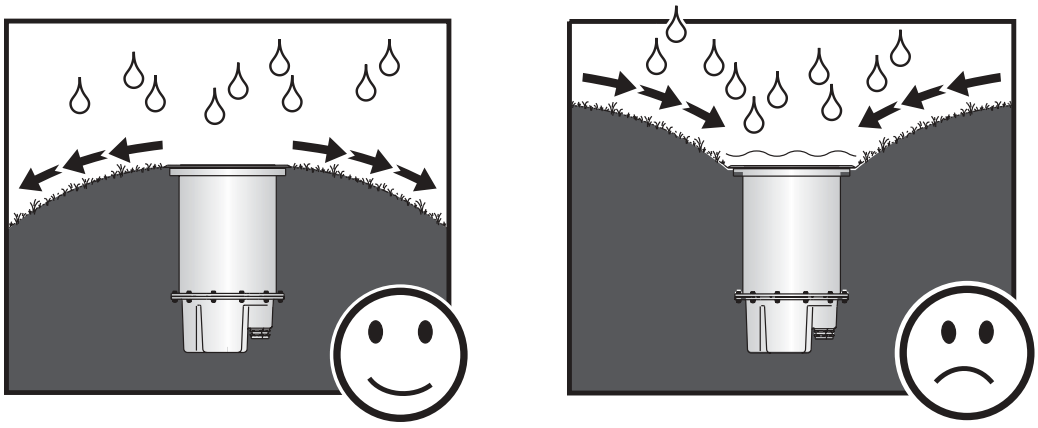
If the Inground 200 is to be installed in a location where pedestrians or vehicles are likely to put weight on the fixture, use a drive-over installation sleeve (see *"1. Installation sleeve"* on page 9).

Water resistance and drainage

The Inground 200 has an ingress protection rating of IP 65/67. This means that the fixture is protected against low-pressure water projection and immersion. However, the product is not designed to withstand high-pressure water jets.

As a sensible precaution, make sure that it is possible for water to leave the installation well or sleeve *at least* as fast as it can enter it. An installation should be capable of draining away water from the heaviest rain or snowfall in the area where the Inground 200 is located.

To minimize the risk of flooding or waterlogging, install the fixture in a location which is above the level of the surrounding area, and make sure drainage conditions are adequate.



Disturbance by roots

The further the fixture is located from vegetation such as trees, hedges or bushes, the less chance there is that the growth of roots will disturb the fixture or even cause damage to the fixture and its

cables. If the fixture is to be located close to vegetation, consult a landscape architect about the possibility of disturbance by root systems.

Service access

Access to the outside of the Inground 200 housing is only necessary during cable installation or cable replacement. All internal components and cable connections can be accessed for service through the top of the fixture without having to remove the housing from its installation site.

Installation options

There are two methods of installing the Inground 200:

1. Installation sleeve
2. Direct burial

1. Installation sleeve

A steel installation sleeve for the Inground 200 is available (contact your Martin Architectural dealer or see the Martin Architectural website at http://www.martin-architectural.com for full details).

Installation instructions for the installation sleeve are included at the end of this guide.

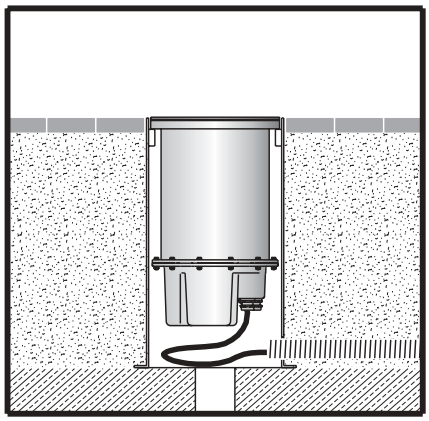
The Inground 200 in a correctly installed drive-over installation sleeve will support a weight of 5000kg from a vehicle tire. Installation instructions are supplied with each sleeve and are available on the Martin Architectural website.

Use of an installation sleeve is recommended for hardscape locations (tarmac, stone paving, etc.) and in landscape locations where the Inground 200 groundwork may be subjected to loads from pedestrians or vehicles (including grasscutting or gardening equipment, motorcycles, emergency services, etc.). Use of an installation sleeve will also allow work to be carried out in two stages:

1. Pre-installation (excavation, conduit-laying and groundwork preparation). This can be carried out by construction personnel.
2. Installation (cable pulling and connection, fixture installation and adjustment). This must be carried out by qualified electrical personnel only.

Sleeve installation: example

The example installation below shows how adequate support and drainage can be achieved, but the installer must make allowance for local conditions:



Temporary installation sleeve cover

To avoid rainwater and dirt gathering in empty installation sleeves while waiting for the Inground 200 to be installed in them, a temporary cover is supplied with each sleeve.

Important! ***The temporary installation sleeve cover is not designed to support weight, so ensure that pedestrians and vehicles are kept away from the sleeve by using warning notices and barriers.***

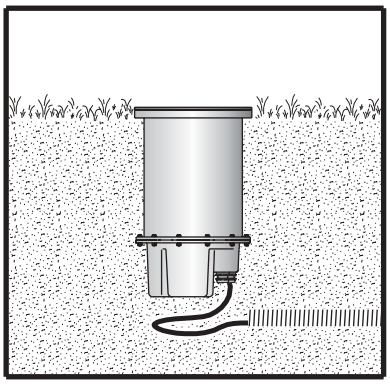
2. Direct burial

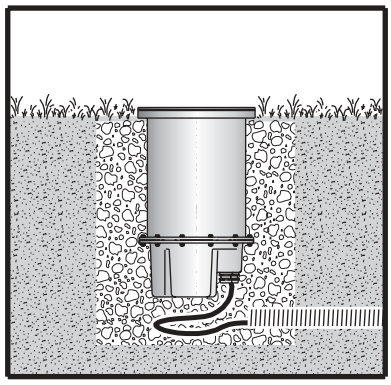
Burying the Inground 200 directly is suitable in landscape installations only. While the fixture itself will bear up to 5000kg (11,023lb), groundwork in direct burial installations is unlikely to remain stable if loads are applied to the fixture. Therefore, in all hardscape locations and in landscape locations where loads may be placed on the fixture, an installation sleeve is required (see *"1. Installation sleeve"* on page 9).

The best fill material is sand. Poured concrete can also be used after all connections have been made and double-checked. The fill should conduct heat away from the Inground 200. Do not use lightweight aggregates or other insulative materials for filling, since these will encourage overheating.

Direct burial: examples

The example installations below show how an Inground 200 can be buried directly, but the installer must make allowance for local conditions:





It is vital to ensure that the base of the housing rests firmly on a strong foundation, so that pressure on the top of the fixture will not press the fixture into the ground. One possible way of achieving this is to pack crushed stone or hardcore firmly in the bottom of the installation well.

Ensure that cables are not stressed or crushed during installation, and ensure that the housing rests on its base, and not on the cables.

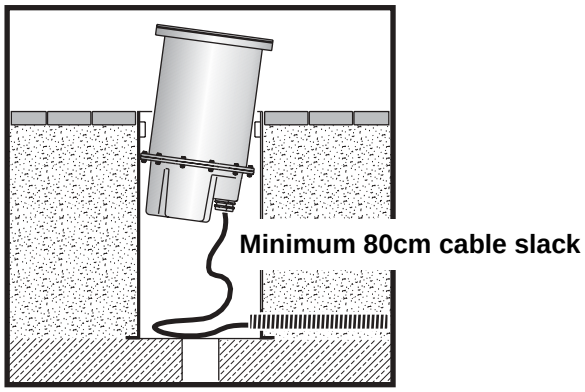
Tip! ***When creating a strong foundation for the Inground 200, remember to allow for drainage.***

Cable installation

Important! ***The installer must make sure that all local safety regulations and legal requirements are followed when selecting and installing cables, conduit, warning tape, controllers and all related items for the Inground 200.***

Cable slack.

Allow at least 80cm (2ft 8in) of free cable in the installation well or sleeve so that the fixture can be lifted clear for service without disconnecting cables.



6. Power and data connection

This section describes how to connect the Inground 200 to AC power. For Inground 200 6 Color and Full Spectrum CMY models, it also describes how to connect control data cables.

AC power supply

Warning! ***For protection from potentially lethal electric shock:***

- ***The Inground 200 must be grounded (earthed).***
- ***The AC power supply must be fitted with a fuse or circuit breaker, ground-fault (earth-fault) protection, and a means to isolate the fixture from power during service or when not in use.***
- ***Cables and fixtures must be isolated from power, and steps taken to prevent reconnection, before carrying out any work on them.***
- ***Before applying power, check voltage and frequency settings and check that cable glands and any blanking plugs used are correctly assembled and tightened.***

Important! ***Do not connect the Inground 200 to an electrical dimmer system: doing so can damage the electronics.***

Power supply settings

The Inground 200 is factory-configured for one of the two power supply settings listed in Table 1 below. The factory power supply settings are printed on the product serial number labels outside and inside the housing. If your local AC voltage or frequency differ from the settings for your model, the fixture's power supply must be rewired by an authorized Martin Architectural service dealer.

Voltage	Frequency
230 V	50 Hz
210 V	60 Hz

Table 1: Default Power Supply Settings

Cable glands

If cable is used that is not within 13 - 17mm diameter (power cable) or 5 - 9mm diameter (data cable), new cable glands that match cable diameter must be obtained from an electrical supplier. Cable glands must also be replaced with new items if cable in an existing installation is replaced with cable of a different diameter. Replacement glands must have the following characteristics:

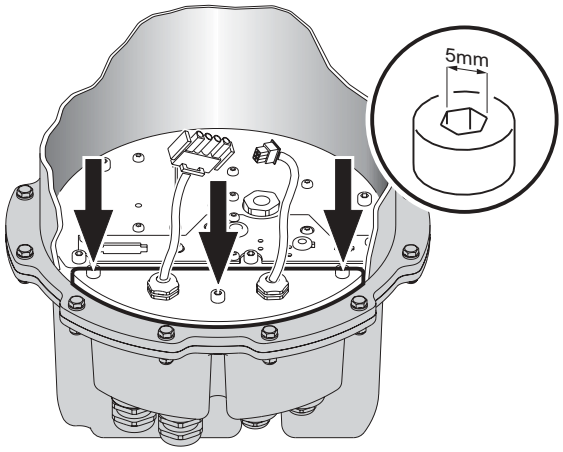
Temperature range: ..... -20° to +70°C or better
Ingress protection rating: ..... IP 67 or 68
Power cable gland thread size: ..... M25 x 1.5
Data cable gland thread size: ..... M16 x 1.5
Minimum entry thread length: ..... 8 mm

Connecting power supply cables

The Inground 200 is supplied with 2 stainless steel M25 x 1.5mm cable glands, water resistant to IP68, for AC power cable entry. The glands accept from 13 to 17mm diameter cable. Power cable must be adequately dimensioned and of appropriate type for the installation.

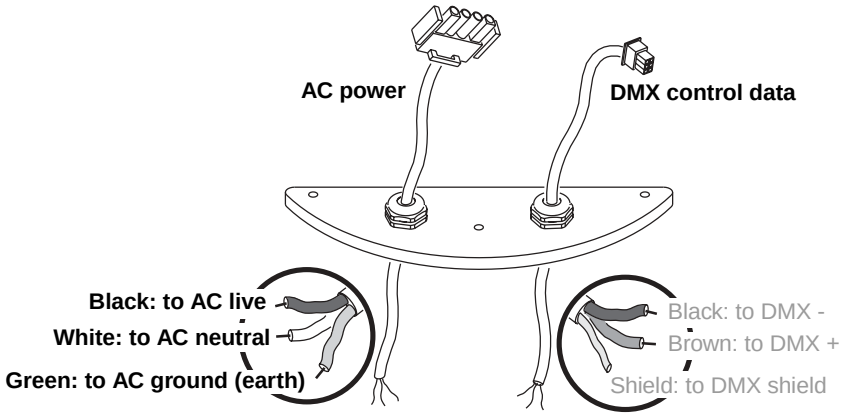
To connect the AC power cables:

1. If the internal components are not already removed to give access to the cable connection compartment, remove them (see *"Component removal & reinstallation"* on page 18).
2. Remove the three 5mm Allen screws from the cable compartment cover and carefully lift the cover off, being careful not to damage the seal:



3. Working from outside the fixture, unscrew one of the two larger blanking plugs on the bottom of the cable compartment. Dismantle a power cable gland and screw the cable entry into the hole with its rubber O-ring facing inwards, so that the O-ring makes a seal against the housing. Tighten sufficiently to make a water-resistant seal. Do not over-tighten, as this may damage the seal.
4. Thread the power input cable through the compression nut, washer, rubber gland and cable entry into the fixture. Remember to allow at least 80cm (2ft 8in) of cable slack in the installation well or sleeve, so that the Inground 200 can be lifted clear for cable disconnection or service.
5. Prevent the cable entry from turning by holding it with a wrench. Tighten the compression nut sufficiently to make a water-resistant seal. Do not over-tighten, as this may damage the seal.
6. If power cable is to continue to another fixture, repeat steps 3 to 5 for the power output cable.

7. Working inside the fixture, connect the Inground 200's green wire to ground (earth), its black wire



to live, and its white wire to neutral. If power cable is to another fixture, connect power in and power out cables to the same terminals on the fixture, so that the Inground 200 is connected to AC power in parallel

Table 2 shows some wire identification schemes; consult an electrician if you have any doubts about proper installation.

Wire (EU)	Wire (US)	Function	Marking	Screw (US)
brown	black	live	"L"	yellow or brass
blue	white	neutral	"N"	silver
yellow/green	green	ground	⏚	green

Table 2: Mains Connections

8. If data cable also needs to be connected, move on to the next section in this guide. If data cable does not need to be connected, examine the seal in the base of the housing. If it shows any signs of damage or deterioration, the PCB/power compartment cover must also be removed and the seal must be replaced with a new one (available from Martin Architectural dealers: p/n 20600450).
9. If the seal is in good condition, place the connections compartment cover back into position, being careful not to damage the seal, and tighten the three cover plate Allen screws by hand until they are finger-tight. Then use an Allen key to tighten each screw a further 3/4 turn only. The cover will now be tight enough to achieve a waterproof seal.

Important! ***Do not overtighten, or you may damage the seal and invalidate the product warranty.***

Do not apply silicone or any other kind of sealant. Doing so will invalidate the product warranty.

10. Replace the lamp module, lens and front glass (see *"Component removal & reinstallation"* on page 18).

Control data cabling

Inground 200 6 Color and Full Spectrum CMY models require a data link for DMX controller operation and for synchronized stand-alone operation of multiple fixtures.

Use only RS-485 data cable designed for burial for this purpose. RS-485 cable has low capacitance and a characteristic impedance of 85 to 150 ohms. It is electrically shielded and has at least 1

twisted-pair of conductors. The minimum wire size is 0.2 mm^2 (24 AWG) for runs up to 300 meters (1000 ft.) and 0.322 mm^2 (22 AWG) for runs up 500 meters (1640 ft).

A male 3-pin XLR connector should be fitted at the controller end of the data link to allow a standard connection to Martin DMX controller and uploader devices. The XLR connector should be wired as follows:

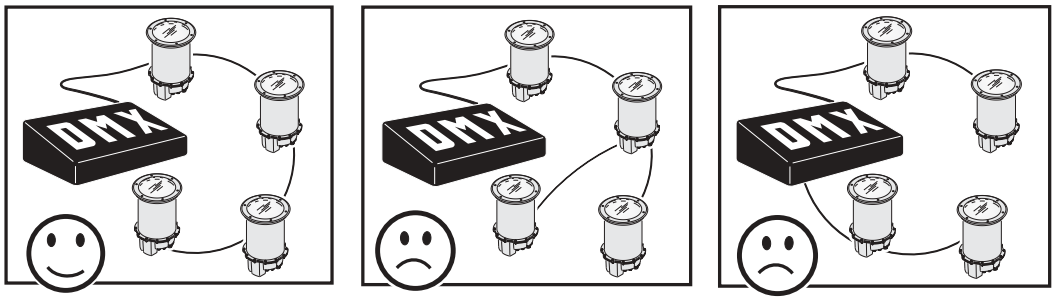
- Pin 1: shield
- Pin 2: DMX -
- Pin 3: DMX +

Note: to avoid ground/earth loop interference, make sure the DMX cable shield does not come into contact with the shell or body of the XLR connector.

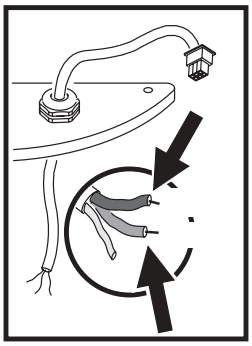
Planning cable layout

The following considerations must be taken into account when planning the layout of DMX control cables:

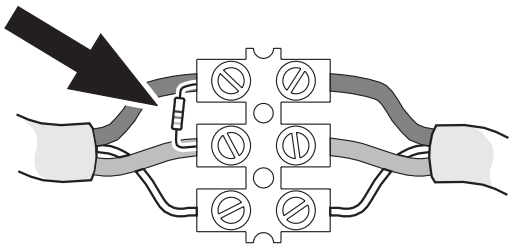
- Fixtures must be 'daisy-chained', i.e. DMX must be connected in one single chain of fixtures.



- The maximum permitted control data cable length is 500 meters (1640 ft). If more than 500 meters of control data cable will be necessary, contact your Martin Architectural dealer for advice.
- Avoid long parallel runs of AC power and control data cables. Even if not required by law, separate conduits are recommended for power and data cables.
- The last fixture in the chain must be terminated with a 120 Ohm resistor connected in parallel with the fixture between the + (brown wire) and - (black wire) DMX terminals. Note that this only applies to the last fixture in the chain. No resistor should be used on the other fixtures.



Black to DMX - and 120 Ohm resistor
Brown to DMX + and 120 Ohm resistor

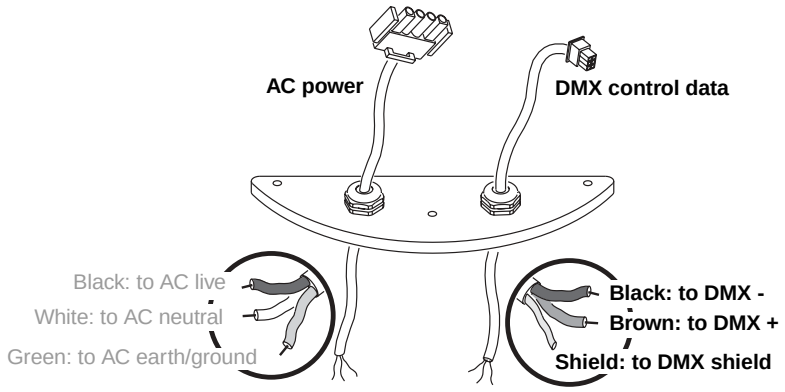


Connecting control data cables

Inground 200 6 Color and Full Spectrum CMY models are supplied with 2 stainless steel M16 x 1.5mm cable glands water resistant to IP68 for data cable entry. The glands accept from 5 to 9mm diameter cable.

To connect data cable:

1. If the internal components are not already removed to give access to the cable connection compartment, remove them (see *"Component removal & reinstallation"* on page 18).
2. If the connection compartment cover has not already been removed, remove it for access (see *"Connecting power supply cables"* on page 12)
3. Working from outside the fixture, unscrew a smaller blanking plug. Dismantle a data cable gland and screw the cable entry into the hole in the bottom of the fixture housing with its rubber O-ring facing inwards, so that the O-ring makes a seal against the housing. Tighten sufficiently to make a water-resistant seal. Do not over-tighten, as this may damage the seal.
4. Thread data cable through the compression nut, washer, rubber gland and cable entry into the fixture. Remember to allow at least 80 cm (2 ft 8 in) of cable slack in the installation well or sleeve, so that the Inground 200 can be lifted clear for cable disconnection or service.
5. Prevent the cable entry from turning by holding it with a wrench. Tighten the compression nut sufficiently to make a water-resistant seal. Do not over-tighten, as this may damage the seal.
6. If the data link is to be continued to another fixture, repeat steps 3 to 5 for the data out cable.
7. Working inside the fixture, connect the incoming DMX data cable to the Inground 200 data cable tail. Connect DMX + to the Inground 200´s brown DMX wire, connect DMX - to the Inground 200´s black wire, and connect shield to shield**.** If the data link is to be continued to another fixture, connect DMX output cable on the same terminals as the input cable, so that the fixture is connected to DMX in parallel.



8. Refit the connections compartment cover, being careful not to damage the seal. If the seal shows any signs of damage or deterioration, the PCB/power compartment cover must also be removed and the seal must be replaced with a new one (available from Martin Architectural dealers: p/n 20600450).
9. Refit the lamp module, lens and front glass (see *"Component removal & reinstallation"* on page 18).

7. Powering on for the first time

After all connections and cables are installed, and after the site has been made safe, the Inground 200 can be powered on for testing and beam adjustment.

When fixtures are powered on, lamps strike after a short delay. When CMY and 6 Color models are powered on for the first time, they will run through a factory-set light show for test purposes. They will continue to run this test sequence until they are programmed.

6 Color model test program

The 6 Color fixture is pre-programmed with 7 scenes, to verify that all colors and the dimmer are working correctly.

1. White 100% intensity.
2. Color 1 100% intensity.
3. Color 2 100% intensity.
4. Color 3 100% intensity.
5. Color 4 100% intensity.
6. Color 5 100% intensity.
7. White 0% intensity (no light).

Full Spectrum CMY model test program

The Full Spectrum CMY fixture is pre-programmed with 5 scenes, to verify that all color-flags and the dimmer are working correctly.

1. White 100% intensity.
2. Cyan 100% intensity.
3. Magenta 100% intensity.
4. Yellow 100% intensity.
5. White 0% intensity (no light).

8. Set-up and adjustment

Beam adjustment

Correct adjustment of the beam of the Inground 200 is critical for correct illumination of the target. Adjustment is best carried out after dark.

Warning! ***Danger of burns, electric shock and lamp explosion!***

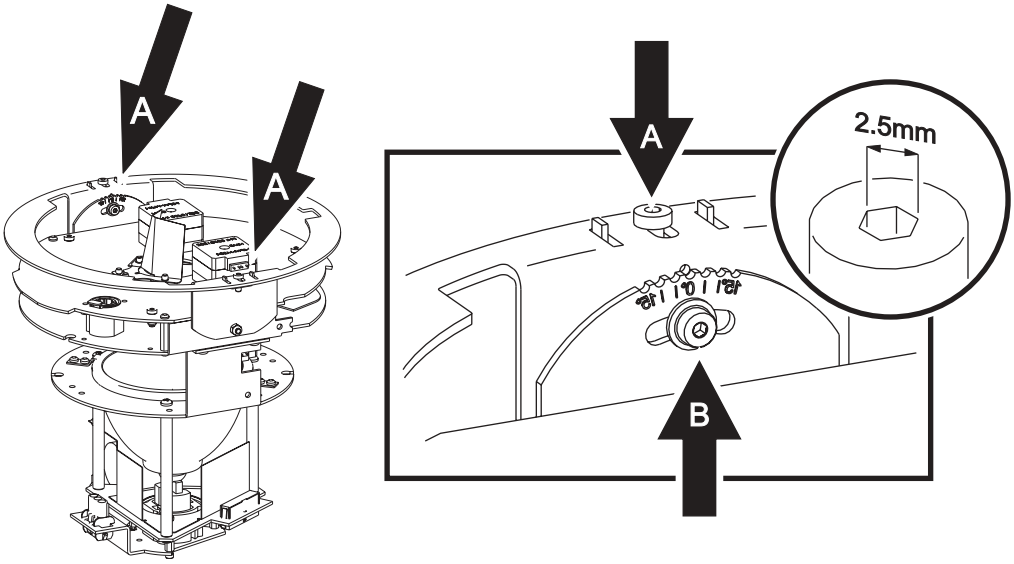
- ***Beam adjustment must be carried out by authorized electrical personnel and in clean, dry conditions only.***
- ***Heat-resistant safety gloves and safety glasses must be worn.***
- ***Do not look directly into the lamp.***
- ***Make sure that nothing falls into the fixture while the front glass and lens are removed.***

You will need 4mm and 2.5mm Allen keys for this task.

To adjust the beam:

1. Depending on whether the Inground 200 has been in operation or not, ensure that the fixture is at optimum temperature for adjustment by following one of these two alternatives:
   a) *If the fixture has been in operation* before you want to adjust the beam, do not switch it off. Instead, remove the front glass and lens (see *"Front glass and lens: removal and refitting"* on page 18) and wait 15 minutes for the lamp module to cool slightly.
   a) *If the fixture has not been in operation* before you want to adjust the beam, remove the front glass and lens (see *"Front glass and lens: removal and refitting"* on page 18), apply power and wait 15 minutes for the lamp to warm up to operating temperature.

2. Loosen the two 2.5mm beam adjustment ring Allen screws (A) and rotate the lamp module until it can be tilted towards the target.



3. Make sure the beam adjustment ring screws (A) are pushed out towards the edges of the module to engage the retaining clips, and retighten the screws to clamp the beam adjustment ring in place.
4. Loosen the tilt adjustment Allen screw (B) on the side of the beam adjustment ring. Adjust the tilt angle from 0 - 15° by pushing down gently on the side of the lamp module top plate. Retighten the tilt adjustment screw (B). Replace the lens.
5. Check that the target is illuminated as intended. If not, repeat step 4. When the desired illumination is obtained, the tilt angle can be read from the guide next to the tilt adjustment screw and noted for future reference.
6. Replace the front glass with its seal and trim ring, gradually cross-tightening the trim ring screws to a maximum torque of 3 Nm/2.2 ft-lbs (see *"Front glass and lens: removal and refitting"* on page 18).

Avoiding condensation and humidity

Excess humidity inside the Inground 200 can be experienced if:

- The installation pit is flooded
- The front glass is not correctly tightened to seal the fixture
- Cable glands are not correctly assembled, tightened and matched to cable diameters
- Blanking plugs are not correctly fitted and tightened
- Cables open into damp or wet locations (e.g. poorly sealed junction boxes), which will encourage moisture to pass along the cable into the fixture

The Inground 200 is fitted with a self-purging valve that expels moisture each time the fixture heats up. Any initial condensation after installation will gradually disappear in normal use. The valve membrane is located on the bottom of the housing between the connections and PCB compartments. If the installation is flooded because of inadequate drainage, the valve will not work and condensation will result.

Clearing excessive humidity

Humidity can be eliminated by running the Inground 200 at operating temperature for a few minutes with the front glass lifted so that air circulates, then refitting and sealing the front glass while the fixture is hot. If you do this:

- The exposed lamp and internals present a risk:, so block public access, wear safety glasses and gloves, and do not look into the light beam.
- Choose dry weather.
- Ensure that no dust or objects enter the fixture while it is open.

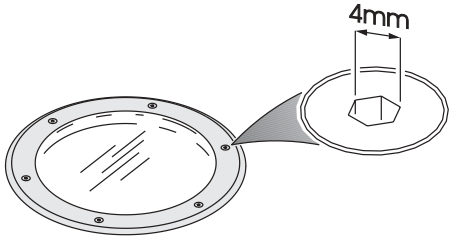
9. Component removal & reinstallation

Tasks such as beam adjustment, lamp replacement and cable connection require the removal and reinstallation of certain components. This section contains instructions for these procedures.

Front glass and lens: removal and refitting

A 4mm Allen key is required for this operation.

1. Isolate the Inground 200 from AC power and allow to cool for at least 15 minutes.
2. Brush sand, dirt, etc. away and clean the Inground 200 and surrounding area to ensure that dirt does not fall into the fixture.
3. Remove the six countersunk 4mm Allen screws and lift the trim ring off the fixture



4. Taking care to avoid damaging the seal, lift off the front glass and its seal.
5. Lift the lens out of the housing.

Refitting the lens and front glass

Important! ***Any damaged seals or screws must be replaced with new items. Two spare 4mm countersunk Allen screws for the trim ring are supplied with the fixture.***

The front glass seal, its seating surface in the housing, the front glass and the trim ring must all be perfectly clean and dry to maintain a waterproof seal.

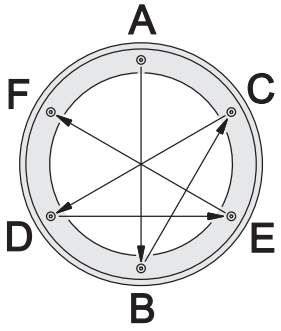
Warning! ***Do not use silicone or any other kind of sealant on the front glass seal, front glass, housing or trim ring. Doing so will invalidate the product warranty.***

Tip! ***Excessive humidity can be cleared by running the fixture at operating temperature for a few minutes with the front glass slightly open (see above).***

1. Inspect the front glass seal for damage before refitting. Replacement front glasses and seals are available from Martin Architectural dealers (front glass: p/n 41700007, front glass seal: p/n 20600441).

2. Inspect the six countersunk Allen screws from the trim ring before reuse. Threads must be clean and undamaged. Two spare screws are supplied with the fixture. Replacement screws are available from Martin Architectural dealers (p/n: 08111314)
3. Refit the lens by lowering it into the housing, rotating the lens if necessary so that the screw in the seating engages in the notch in the lens flange.
4. Place the front glass complete with its seal in the top of the housing and place the trim ring over the front glass.
5. To make future service easier, apply a small amount of copper-based or silicone grease to the threads of the trim ring screws before insertion.
6. See illustration below. Gradually cross-tighten the trim ring screws in the sequence illustrated to approximately 3 Nm/2.2 ft-lbs.

Important! ***Do not exceed a torque of 3 Nm/2.2 ft-lbs by more than 20%, or you may distort the trim ring and damage the seal. This will impair the Inground 200's waterproof properties and invalidate the product warranty.***



Lamp module: removal and refitting

This section describes removal and refitting of the lamp module to gain access to the connections and PCB/power compartments at the bottom of the fixture. If you need to replace the lamp, please refer to the Inground 200 User Manual.

To remove the lamp module:

1. Isolate the Inground 200 from AC power and allow to cool for at least 15 minutes.
2. Remove the front glass with seal and lens (see *"Front glass and lens: removal and refitting"* on page 18).
3. Do not loosen the beam adjustment screws and avoid disturbing the beam adjustment settings. Holding the lamp module by the beam adjustment ring, gently lift the whole module upwards until it is clear of the housing. Note the positions of the lamp module wiring connectors, then disconnect them and lift the lamp module out of the housing.

To refit the lamp module:

1. Reconnect the lamp module wiring connectors.
2. Note the position of the screw in the lamp module seating in the housing. Lower the lamp module into the housing, rotating it if necessary so that the notch in the top of the lamp module engages with the screw. The lamp module is now correctly oriented.
3. If beam settings have been disturbed, readjust the beam (see *"Beam adjustment"* on page 16).
4. Refit the lens, front glass with its seal and trim ring, and cross-tighten the trim ring screws gradually to 3 Nm/2.2 ft-lbs (see *"Front glass and lens: removal and refitting"* on page 18).

10. Installation troubleshooting

Problem	Probable cause(s)	Remedy
Excess moisture build-up in fixture (condensation under front glass).	Inadequate front glass sealing.	Ensure that trim ring screw torque is 3 Nm/2.2 ft-lbs). Ensure that trim ring seats correctly in top of fixture housing. Replace seal if damaged.
	High humidity during installation.	Allow fixture to cycle on and off in normal use to activate self-purging valve. Run fixture for a few minutes with front glass lifted for ventilation.
	Flooded installation pit.	Improve drainage.
	Moisture sucked in along cables.	Eliminate moisture from locations where cable outer cover opens.
	Inadequate sealing of cable glands and/or blanking caps.	Retighten. Replace if not matched to cable diameter or defective.
Fixtures cut out after 1 - 3 hours. Problem is relieved if water is poured into fill material around fixture.	Temperature too high: thermal cutout shutting down power to avoid overheating.	Modify fill material in sleeve to improve heat conduction away from fixture.

11. Installation specifications

Dimensions

Height 496mm (19.53in.)
Trim ring outer Ø ..... 340mm (13.39 in.)
Trim ring thickness ..... 7mm (0.28 in.)
Top flange outer Ø ..... 310mm (12.2 in.)

Weight-bearing capacity

Front glass (load from pneumatic tire) 5000kg (11,023lb)
Inground 200 in installation sleeve with suitable groundwork 5000kg (11,023lb)

Cable entry

AC power entry ..... 2 x threaded holes, M25 x 1.5, thread length 8mm (0.31 in.)
AC power cable glands ..... 2 x stainless steel (IP 68), M25 x 1.5, Ø 13-17mm (Ø 0.51-0.67 in.)
Control data cable entry ..... 2 x threaded holes, M16 x 1.5, thread length 8mm (0.31 in.)
Control cable glands (6 Color and Full Spectrum CMY models) ..... 2 x stainless steel (IP 68), M16 x 1.5, Ø 5-9mm (Ø 0.2-0.35 in.)

Ordering information: accessories

Front glass ..... P/N 41700007
Front glass seal ..... P/N 20600441
Connections compartment/power compartment seal ..... P/N 20600450
Installation sleeve, bevelled mount ..... P/N 91611194
Installation sleeve, flush mount ..... P/N 91611215
Anti-skid front glass ..... P/N 91611198
Tamperproof hex screws (6 pcs.) and key ..... P/N 91611200
Eyelid ..... P/N 91611201
Ring louver ..... P/N 91611202
Rock guard kit, steel ..... P/N 91611199
Rock guard kit, brass ..... P/N 91611208
Rock guard kit, aluminum ..... P/N 91611209
Top ring kit, bevelled, aluminum ..... P/N 91611210
Top ring kit, bevelled, brass ..... P/N 91611211
Top ring kit, flush mount, aluminum ..... P/N 91611213
Top ring kit, slush mount, brass ..... P/N 91611214

For full product specifications and ordering information, please refer to the User Manual. Constantly updated information is also available on the Martin Architectural website at http://www.martin-architectural.com

Inground 200 installation sleeve instruction note

The Inground 200 installation sleeve is recommended for hardscape locations and all locations with pedestrian and/or vehicle traffic. Sleeves are supplied in either flush or bevelled mount models. The flush mount model is recommended for areas with traffic.

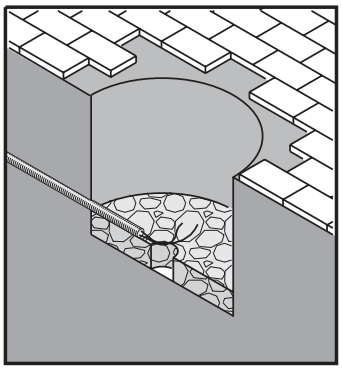
Warning! Ensure that supply cables cannot be connected to AC power during installation.

The sleeve is supplied with instructions, 3 clamps, a steel cover/guide plate for use while filling the sleeve, and filling material (oven-dried fine sand).

Installing the sleeve

To install the Inground 200 in an installation sleeve:

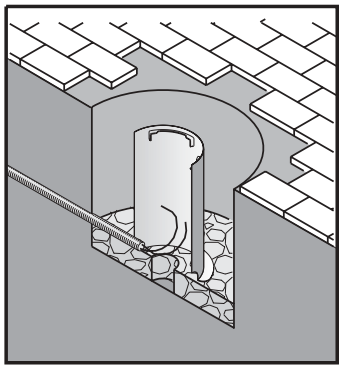
A



Prepare the groundwork.

Test to ensure adequate drainage. Ensure that the foundation will withstand loads on the fixture (from vehicles, for example).

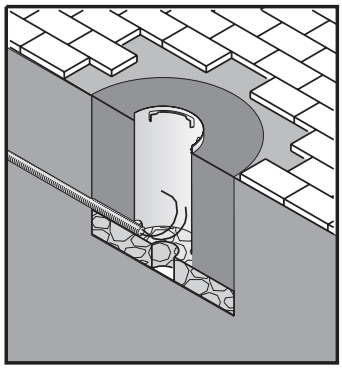
B



Put the sleeve in position. Cutouts are provided for cable conduit.

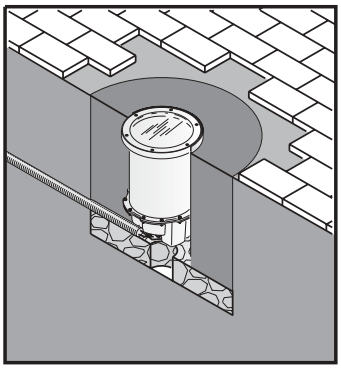
Place a straightedge across the top of the sleeve and adjust height so that the sleeve will be flush with the finished surrounding surface.

C



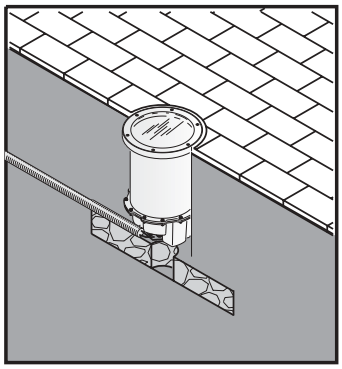
Fill around the sleeve. Hardcore and/or concrete are suitable.

D



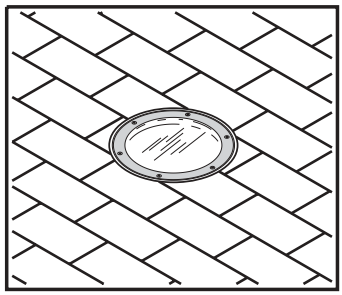
Install the fixture in the sleeve (see instructions on next page).

E



Finish the surface around the fixture (flush mount model illustrated).

F



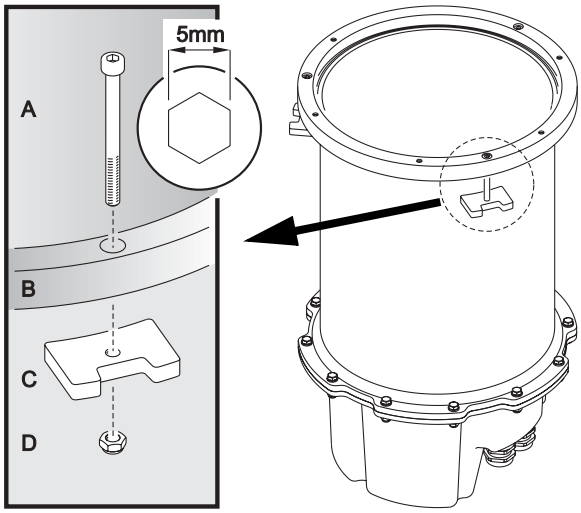
The finished installation.

Installing the Inground 200 in the sleeve

This procedure must be carried out by an authorized electrician.

Ensure that cables cannot be connected to AC power during installation.

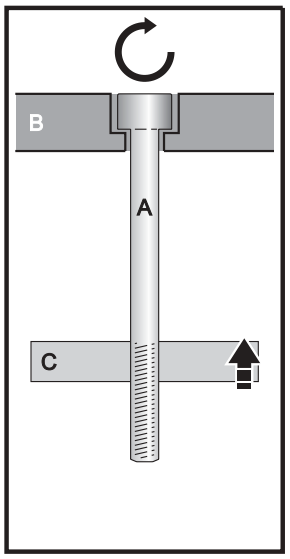
Use of a vacuum cleaner is recommended for some parts of this procedure.



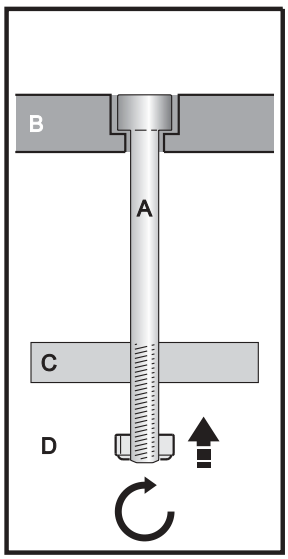
To install the Inground 200 in an installation sleeve:

1. Remove the Inground 200's front glass, lens and lamp module as described in the Installation Guide.
2. Place the fixture next to the installation sleeve. Connect cables, tighten cable glands and tighten any blanking plugs used as described in the Installation Guide.

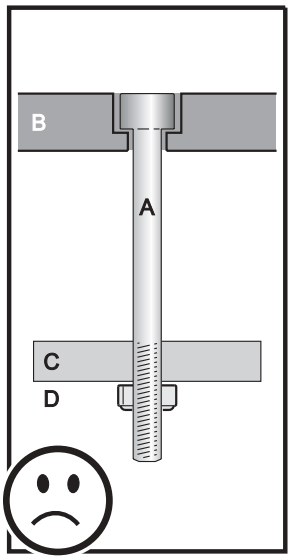
The installation sleeve is supplied complete with 3 clamps to hold the fixture in the sleeve (see illustration above). Clamp the Inground 200 into the sleeve as described below:



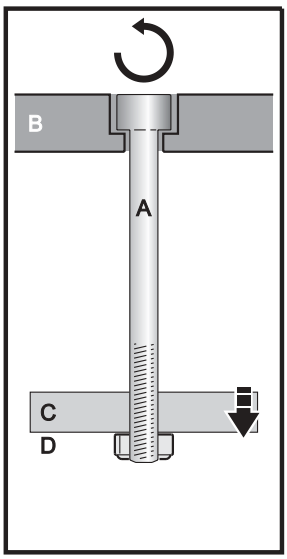
3. Pass a 5mm Allen cap clamp bolt (A) through one of the three recessed holes in the top of the housing (B) and screw the bolt through a clamp block (C).



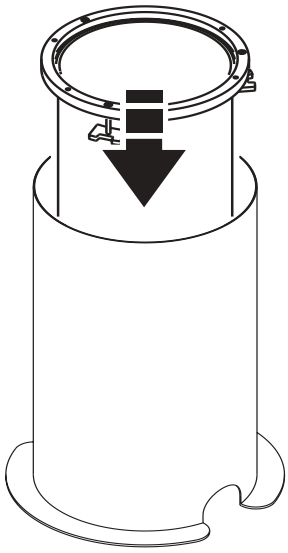
4. Screw a self-locking retaining nut (D) onto the end of the clamp bolt until the nut is flush with the end of the bolt.



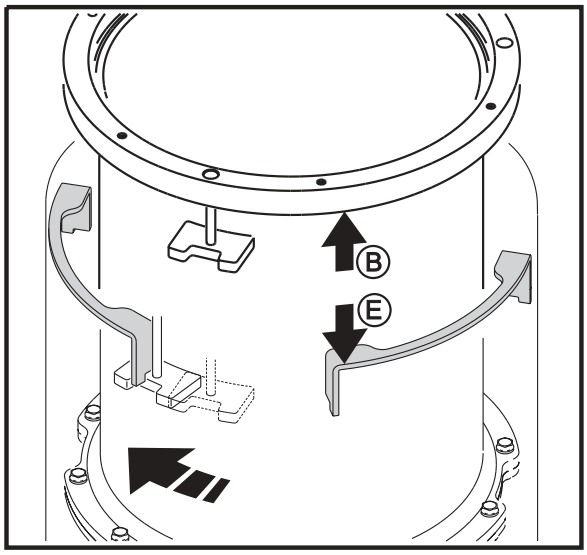
5. Do not screw the nut any further up the bolt.



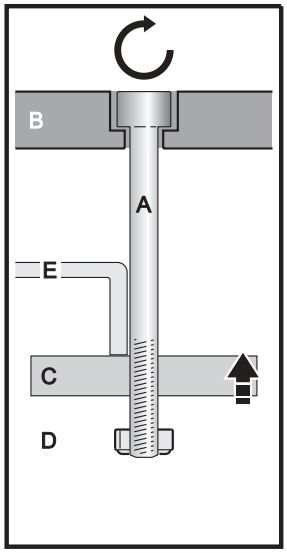
6. Unscrew the bolt back up through the clamp block until the retaining nut touches the clamp block.



7. Holding the Inground 200 by the inside rim of the housing, begin lowering it into its sleeve.



8. As you lower the Inground 200, ensure that the clamp blocks (C) pass between the fins in the sleeve so that the outer rim (B) sits on the fins (E). Then rotate the Inground 200 so that the clamp blocks locate under the fins.

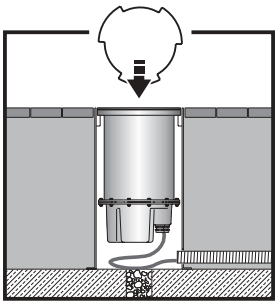


9. Tighten the three clamp bolts (A) finger tight only.

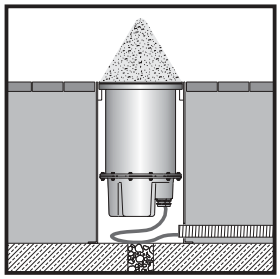
10. Screw on the trim ring to center the fixture in the sleeve, then remove the trim ring again and fully tighten the clamp bolts (A)

    Ensure that the Inground 200 is correctly centered in the sleeve and that the front glass seal seats correctly before adding fill material.

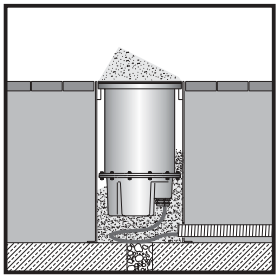
11. With the fixture installed and clamped in place, fill the remaining space in the installation sleeve with the fine sand supplied with the sleeve as described below:



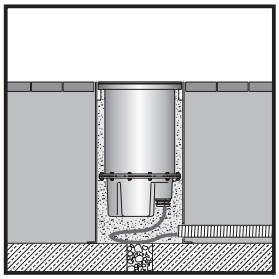
12. Put the plate supplied with the installation sleeve on the Inground 200. Rotate the plate so that sand can run through the three cutouts into the bottom of the sleeve..



13. Tip sand onto the plate and guide it down between the cutouts in the plate and into the sleeve.



14. Fill as much sand as possible into the sleeve. When the sleeve appears full, water poured into the sleeve can help the sand settle. Add sand as necessary.



15. Remove remaining sand from the plate, preferably with a vacuum, and remove it. Remove any sand from inside the fixture and from the top glass sealing surface.

If any other fill material is used, make sure it conducts heat away from the Inground 200. Do not use lightweight aggregates or other insulative materials for filling, since these will encourage overheating.

The Inground 200 is now ready for internal components to be installed as described in the Installation Guide and product manuals.

Installation sleeve specifications

Dimensions

Height ..... 600mm (23.6 in.)
External diameter of tube ..... 330mm (13 in.)
Base flange diameter ..... 410mm (16.2 in.)

Construction

Acid-resistant stainless steel

Weight-bearing capacity

Installation sleeve with suitable groundwork 5000kg (11,023lb)

Included items

Instruction note ..... P/N 35000566
Clamp set (3 x 5mm M6 Allen hex cap clamp bolts, 3 x clamp blocks, 3 x 10mm M6 self-locking nuts)
Sleeve fill guide/cover plate
40kg (88 lb.) rinsed and oven-dried beach sand

Ordering information

Installation sleeve, bevelled mount ..... P/N 91611194
Installation sleeve, flush mount ..... P/N 91611215

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