CCC As-built requirements for Land Improvements V3.0

Survey As-built Guidelines (SAG) Appendix P

CCC As-built requirements for Land Improvements V3.0

P01: Parks Tank

Name **Parks Tank (Point)**

Point Type **P01** "Point Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	P01
B	Specific type of Tank (Use)	Select from pick list: domParksTankUse
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domInstalledBy
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
M	File name of photo - Photos must be supplied	data - Text (50 Characters)
N	Construction Material	Select from pick list: domParksTankConstruction
O	Tank Contents	Select from pick list: domParksTankContent
P	Capacity in litres (Ltrs)	data - Decimal Number (7 Chars, 0 Decimals)
Q	Re-locatable?	Select from pick list: domParksTankRelocatable
R	Construction Style	Select from pick list: domParksTankConstructionStyle
S	Ground Feature Type	Select from pick list: domParksTankFoundation

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

An enclosed container for storing liquids. Some tanks may incorporate treatment (e.g. septic tanks). Ensure only tanks owned and used for the park are captured. Do not capture assets that are part of the council's waste water, or water supply network. Ponds constructed to hold water for livestock or firefighting are also considered tanks.

Centre of structure
X Y

Plastic/Polyethylene water tank.

Buried Septic tank. Vent and access exposed.

Parks Tank (Continued)

CLASSIFICATION INFORMATION

1. Artwork (Yes/No)
Most tanks will not have an artwork component. Some tanks however may be painted or decorated and have an artwork component.

2. Ground Feature Type - describe where the tank is in relation to the ground. Picklist includes values such as Above ground, Below ground, Combination, etc.

3. Tank Use
a. **Domestic** – Tank constructed to service the building (water supply, wastewater, etc).
b. **Fire Fighting** –Contents are for fighting fires. May be a tank or a pond.
c. **Heating** – Not applicable to water.
d. **Irrigation** – Tank contents are used for irrigation.
e. **Stock** – Tank contains livestock drinking water. May be tank or pond.
f. **Vehicles** – Not applicable to water.

4. Tank Contents
What does the tank contain?
a. Diesel
b. Petrol
c. Sewerage
d. Water
e. Gas

5. Construction Material
See the definitions section for a full list of construction materials.

6. Capacity
How much can the tank hold? All capacities should be in Litres.

7. Re-locatable
Can the tank be moved and used in another location?

CLASSIFICATION INFORMATION

8. Construction Style
a. **Pre-Cast** – Concrete tank cast into shape off-site and transported ready made to site for installation.
b. **Pre-Fabricated** – Plastic or steel tank fabricated off-site and transported ready made to site for installation.
c. **Sectional** – Pre-made sections of tank made off site and joined together during installation.
d. **Cast In-Situ** – Tank cast as part of the installation.
e. **Masonry** – Bricks or stones joined by mortar.
f. **Welded** – Metallic plates fused together.
g. **Riveted** – Metallic plates fastened together with bolts or rivets.

ADDITIONAL COMMENTS

Ponds constructed to hold water for livestock or firefighting are also considered tanks.

Water tanks supplying water troughs on CCC parks land are generally Council owned. Exceptions are any makeshift tanks which are private.

Wastewater tanks are installed underground. Visible parts of the tank range from the top of the tank through to only a vent pipe visible. Care is required to ensure they are captured and classified correctly.

Reservoirs, pump stations, manholes and overflow chambers that are part of the Council water supply or wastewater systems are not to be captured as tanks. Examples of these assets are shown below.

ADDITIONAL PHOTOS

Wastewater Tank/Pump Chamber

Concrete and Fibreglass Water Tanks

P02: Parks Pump

Name **Parks Pump (Point)**

Point Type **P02** "Point Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	P02
B	Specific type of Pump	Select from pick list: domParksPumpType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domInstalledBy
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
M	File name of photo - Photos must be supplied	data - Text (50 Characters)
N	Service	Select from pick list: domParksPumpService
O	Pump Function	Select from pick list: domParksPumpFunction
P	Pump Purpose	Select from pick list: domParksPumpPurpose
Q	Usage Class	Select from pick list: domParksPumpUsageClass
R	Pump Source	Select from pick list: domParksPumpSource
S	Vertical Multistage	Select from pick list: domParksPumpVerticalMultistage
T	Submersible	Select from pick list: domParksPumpSubmersible
U	Impeller Diameter in millimeters (mm)	data - Decimal Number (4 Chars, 0 Decimals)
V	Impeller Model Number	data - Text (30 Characters)
W	Pulley Diameter in millimeters (mm)	data - Decimal Number (6 Chars, 0 Decimals)
X	Discharge Diameter in millimeters (mm)	data - Decimal Number (4 Chars, 0 Decimals)
Y	kVA Rating	data - Decimal Number (6 Chars, 2 Decimals)
Z	Maximum Lift in meters (m)	data - Decimal Number (5 Chars, 2 Decimals)
AA	Manufacturer	Select from pick list: domParksPumpManufacturer
AB	Model Name	data - Text (50 Characters)
AC	Part Number	data - Text (50 Characters)
AD	Serial Number	data - Text (50 Characters)

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

A device designed to move fluids through mechanical action.

Centre of structure
X Y

Hand pump installed in a park. This pump has an artwork component.

Pump and motor on irrigation system.
Ensure only pumps owned and used for the park are captured. Do not capture assets that are part of the council's waste water, or water supply network.

Parks Pump (Continued)

CLASSIFICATION INFORMATION

1. Artwork (Yes/No)
Motor driven pumps will not have an artwork component. Hand pumps have an artwork component.

2. Service
What fluid does the pump transfer?
a. Drainage – Stormwater
b. Sewerage – Wastewater
c. Water – Potable water

3. Pump Function
Where in the network is the pump?
a. Booster – A booster pump is mounted in-line to increase pressure.
b. Primary – Primary pumps feed the network from a raw water source.
c. Secondary – Secondary pumps feed the network from a tank on another network.
d. Standby – Pump that runs only when other pumps have failed/broken down.
e. Not-Applicable – Use this for parks.

4. Pump Purpose
What has the pump been installed for?
a. Booster – Pump increases pressure.
b. Main – Pump supplies reticulation.
c. Sump – Pump drains a sump or tank.
d. Well – Pump installed to supply from within a well.
e. Cooling – Cooling water pump.
f. Flushing – Flushing pump.
g. Fuel – Fuel transfer pump.
h. Secondary – Secondary pump.
i. Irrigation – Mainly used for parks

5. Usage Class
a. Standby – Pump that functions when another pump has broken down.
b. Non Standby – Primary Pump.

6. Pump Source
Where does the pump suck from?
a. Well 1 – Well number 1.
b. Well 2 – Well number 2.
c. Well 3 – Well number 3.
d. Well 4 – Well number 4.
e. Well 5 – Well number 5.
f. Well 6 – Well number 6.
g. Well 7 – Well number 7.
h. Well 8 – Well number 8.
i. Well 9 – Well number 9.
j. Tank – Water tank.
k. Wetwell – A chamber designed to fill with liquids.
l. Drywell – A chamber designed to remain dry.
m. Multiple Wells – More than 1 well.

7. Vertical Multistage
Is the asset a vertical multistage pump?

8. Submersible
Is the asset a submersible pump?

9. Impeller Diameter
What is the impeller diameter in mm?

10. Impeller Model Number
What is the impeller model number?

11. Pulley Diameter
What is the pulley diameter in mm?

12. Discharge Diameter
What is the pump discharge diameter in mm?

13. KVA Rating – Specify pump motor's kVA Rating

14. Maximum Lift in Meters (M)

15. Manufacturer, Model Name, Part Number, Serial Number – Provide information on pump's name plate. This helps with warranty tracking, replacements, etc.

ADDITIONAL COMMENTS

Pumps and pumpsets have the same function but differ in the design of the asset. Pumps are able to be separated from the associated motor and can be maintained or replaced independently. Pumpsets have the pump and motor as a single unit and cannot be easily separated.

A plate fixed to the body of the pump should state the manufacturer, model number, discharge diameter and other information.

Impeller diameter and model numbers may only be on literature provided with the pump. This literature may not be present on site making it difficult to complete these fields. Fields that cannot be completed due to lack of information should be left blank.

Make sure only pumps owned and used for the Park are captured. Do not capture assets that are part of the council's waste water, or water supply network. Park owned pumps would usually be used for park irrigation systems.

CCC As-built requirements for Land Improvements V3.0

P03: Irrigation System

Name **Irrigation System (Point)**

Point Type **P03** "Point Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	P03
B	Specific type of Irrigation System	Select from pick list: domIrrigationSystemType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domInstalledBy
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
M	File name of photo - Photos must be supplied	data - Text (50 Characters)
N	Supply Type	Select from pick list: domSupplyType
O	Controller	Select from pick list: domIrrigationSystemController
P	Control Subtype	Select from pick list: domIrrigationSystemControllerSubtype
Q	Drip System	Select from pick list: domIrrigationSystemDripSystem
R	Popup System	Select from pick list: domIrrigationSystemPopupSystem
S	Number of Sprinklers	data - Number

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

A device used to control the watering of a green asset.

Centre of structure
X Y

Irrinet system in wall cabinet.

Only the irrigation system controllers are to be captured. Sprinkler heads are included in the classification of the controller boxes and should not be captured separately

Irrigation System (Continued)

CLASSIFICATION INFORMATION

1. System Type
What is the green asset the system is designed to water?
- **a. Amenity Turf** – The system irrigates amenity turf.
- **b. Plantings** – The system irrigates plants.
- **c. Sports Turf** – The system irrigates sports turf

2. Supply Type
Water source the system utilises
- **a. City Mains** – Irrigation water comes from the city mains with no assistance.
- **b. City Mains Pump Assisted** – Irrigation water comes from the city mains with a pump to increase pressure.
- **c. Well Pumped** – Irrigation water is supplied from a well in the park.

3. Controller
Type of mechanism used to manage when and how green assets are hydrated?
- **a. Irrinet** – An electrical, automated controller with radio communication allowing programming from CCC offices.
- **b. Manual** – Valves must be opened and closed by hand.
- **c. Stand Alone** – An electrical, automated controller that must be programmed on-site.

4. Controller Sub Type
For systems on the Irrinet network; what is fitted at the park?
- **a**. **Impact**
- **b**. **Irrinet**
- **c**. **Scorpio**
- **d**. **Piccolo**
- **e**. **Ace**

5. Drip System
Are drip lines used to irrigate?

6. Pop-Up System
Does the irrigation system use pop-up sprinklers?

7. Number of Sprinklers
How many sprinkler heads are fitted to the irrigation system?

ADDITIONAL COMMENTS

Only the irrigation system controllers are to be captured. Sprinkler heads are included in the classification of the controller boxes and should not be captured separately.

P04: Parks Backflow Preventer

Name **Parks Backflow Preventer (Point)**

Point Type **P04** "Point Asset Inputs"

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	P04
B	Specific type of Backflow Preventer - describe the break and preventer used for this asset	Select from pick list: domParksBackflowPreventerType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domParksBackflowPreventerInstallationCompany
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
M	File name of photo - Photos must be supplied	data - Text (50 Characters)
N	Backflow Internal Diameter in millimeters (mm)	data - Decimal Number (4 Chars, 0 Decimals)
O	IQP (Independent Qualified Person) Number of person who installed the device/system	data - Text (30 Characters)
P	Tester - Who tested the device?	data - Text (30 Characters)
Q	Manufacturer	Select from pick list: domParksBackflowPreventerManufacturer
R	Model Name	data - Text (50 Characters)
S	Part Number	data - Text (50 Characters)
T	Serial Number	data - Text (50 Characters)

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

A device to stop the return flow of a liquid (usually water) to the pipe network from which it came.

Centre of structure
X Y

Small diameter (15-50mm) RPZ (reduced pressure backflow preventer)

Small diameter (15-50mm) double check valve

Parks Backflow Preventer (Continued)

CLASSIFICATION INFORMATION

1. Backflow Internal Diameter
What is the inside diameter of the backflow preventer? Size information should be on a plate attached to the body.

2. Backflow Type
a. **Air Gap Separator** – Registered air gap. Unobstructed vertical space between the water outlet and the flood level.
b. **Atmospheric Vacuum Breaker** – Opens to atmosphere when the inlet pressure drops below the outlet pressure. Not for use when the inlet will have continual pressure.
c. **Barometric Loop** – Vertical structure over 10m tall either with two pipes joined at the top or one pipe inside another.
d. **Double Check Valve** – Device consisting of two check valves in series. Ports and small valves are installed on the side to allow testing.
e. **Dual Check Device** – Device consisting of two check valves in series. Not testable, no ports on sides.
f. **Hose Bibb** – A small atmospheric vacuum breaker fitted to a hose tap. Usually for domestic use only.
g. **Pressure Vacuum Breaker** – Similar to Atmospheric Vacuum Breaker but can be used in continuous pressure applications.
h. **Reduced Pressure Zone** – Highest level of protection and most commonly used. A double check valve with a drain to the atmosphere. Always installed above ground.
i. **Swing Check Valve** – Standard one way valve. Not commonly used for backflow prevention as they are easily jammed open.

3. IQP Number
'Independent Qualified Person' Register Number of the person who installed the device/system.

ADDITIONAL COMMENTS

Manufacturer, Model Name, Part Number, Serial Number – Provide information on device name plate. This helps with tracking, replacements, etc.

The majority of backflow prevention devices seen in parks will be either double check valves or reduced pressure zones.

ADDITIONAL PHOTOS

Small Diameter (15-50mm) RPZ

P05: Parks Cable

Name

Line Type

Parks Cable (Line)

P05 "Line Asset Inputs "

CAT Column	SAG Attribute Description	Valid Values
A	Type of Line Feature	P05
B	Leave Blank	Leave Blank
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Line Vertex Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Line Vertex Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Order of vertex / point along Line	data - Number
I	Date of commission	data - Date (dd/mm/yyyy)
J	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
K	Name of main contractor who installed asset	Select from pick list: domInstalledBy
L	Date of "survey-start"	data - Date (dd/mm/yyyy)
M	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
N	File name of photo - Photos must be supplied	data - Text (50 Characters)
O	Cable Purpose	Select from pick list: domParksCablePurpose
P	Cable Length in metres (m)	data - Decimal Number (6 Chars, 2 Decimals)
Q	Spec Sheet	data - Text (30 Characters)

Cables are formed by a conductor surrounded by a shield.

X Y

Power Cables

Signal Cable

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.
Col G: enter number of vertex along line

Parks Cable (Continued)

CLASSIFICATION INFORMATION

1. Cable Purpose

a. **Power** - An electrical cable, an assembly of one or more electrical conductors, usually held together with an overall sheath. The assembly is used for transmission of electrical power.

b. **Fibre -** A technology that uses glass (or plastic) threads (fibres) to transmit data. A fibre optic cable consists of a bundle of glass threads, each of which is capable of transmitting messages modulated onto light waves.

c. **Communications -** transmits information signals between geographically separated points.

d. **Control & Indication**

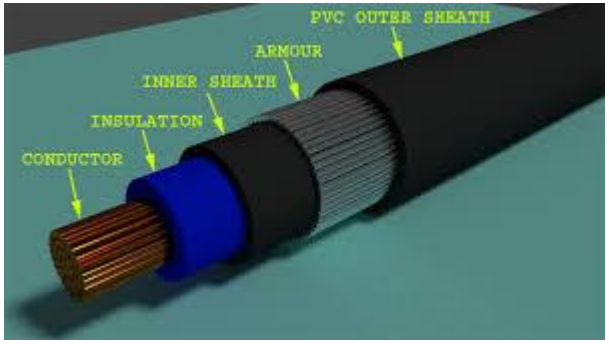
2. Cable Length

What is the length of the cable in metres (m)?

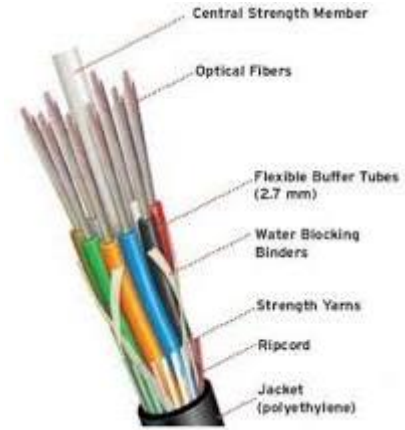
3. Spec Sheet

Provide data sheet / drawing name that provides more information about the cabling / electrical diagram.

ADDITIONAL PHOTOS



Electrical Cable



Fibre Cable

P06: Parks Electrical System

Name **Parks Electrical System (Point)**

Point Type **P06** "Point Asset Inputs"

An electric power system is a network of electrical components deployed to supply, transfer, store, and use electric power.

Centre of structure
X Y

CAT Column	SAG Attribute Description	Valid Values
A	Type of Point Feature	P06
B	Electric System Type	Select from pick list: domElectricalSystemType
C	Asset Record Capture Type	Select from pick list: domExistingOrNew
D	Differs from design (yes/no)	Select from pick list: domDiffersFromDesign
E	Asset Unique Identifier	data - Text (100 Characters)
F	Centre of Structure in Easting coordinate	data - Decimal Number (12 Chars, 2 Decimals)
G	Centre of Structure in Northing coordinate	data - Decimal Number (12 Chars, 2 Decimals)
H	Date of commission	data - Date (dd/mm/yyyy)
I	Location certainty - accuracy of data	Select from pick list: domLocationCertainty
J	Name of main contractor who installed asset	Select from pick list: domInstalledBy
K	Date of "survey-start"	data - Date (dd/mm/yyyy)
L	Long Description - explanation, further details, or location within park	data - Text (70 Characters)
M	File name of photo - Photos must be supplied	data - Text (50 Characters)
N	Spec Sheet - File name of data sheet.	data - Text (30 Characters)
O	Inside Cabinet?	Select from pick list: domElectricalSystemInsideCabinet
P	Construction Material	Select from pick list: domElectricalSystemConstruction
Q	Main Switch Amps in Ampere (A).	data - Decimal Number (6 Chars, 2 Decimals)
R	Incoming Rate Current in Ampere (A).	data - Decimal Number (6 Chars, 2 Decimals)
S	Installation date of the asset	data - Date (dd/mm/yyyy)
T	Warranty Start Date	data - Date (dd/mm/yyyy)
U	Warranty end Date	data - Date (dd/mm/yyyy)
V	Height in millimetres (mm).	data - Decimal Number (5 Chars, 0 Decimals)
W	Length in millimetres (mm).	data - Decimal Number (5 Chars, 0 Decimals)
X	Depth data in millimetres (mm).	data - Decimal Number (5 Chars, 0 Decimals)
Y	External Coating Type Finish	data - Text (30 Characters)
Z	Thickness in millimetres (mm).	data - Decimal Number (4 Chars, 1 Decimals)
AA	Ingress Protection	data - Text (3 Characters)
AB	Form of Separation	data - Text (2 Characters)
AC	Type Tested (Yes, No, Partial)	Select from pick list: domElectricalSystemTypeTested
AD	Fault Rating in kA	data - Decimal Number (4 Chars, 0 Decimals)

Additional Information

*All other columns must be left "blank" or hold the value "LEAVE BLANK" as default in CAT
See Appendix C.1.2 for a CAT example.

Parks Electrical System (Continued)

1. Electrical System Type
Specify type of Electrical System.

a. Control Panel
b. Distribution Board
c. Electric Vehicle Charger
d. Main Cabinet
e. Motor Control Centre
f. Power Bollard
g. Power Supply Box
h. Switchboard
i. Not Applicable
j. Not in List
k. Unknown

2. Spec Sheet
Provide data sheet / drawing name that provides more information about the cabling / electrical diagram.

3. External Coating Finish Type
Specify as per http://www.ralcolor.com/

4. Ingress Protection
Form of Protection specified as per standard 2 digit IP Code. Ref. Ingress Protection tab.

5. Form of Separation
Form of Separation. As per
Annex D of Standard BS EN 60439

6. Type Tested?
Limited list of values. Specify Yes / No or Partial

7. Fault Rating
Specify Fault Rating in kA

Ingress Protection Codes

INGRESS PROTECTION CODE (for Electrical Equipments)

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors,

Level	Object size protected against	Effective against
0	–	No protection against contact and ingress of objects
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	>12.5 mm	Fingers or similar objects
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact (dust proof)
6	Dust tight	No ingress of dust; complete protection against contact (dust tight)

The second digit indicates the level of protection that the enclosure provides against harmful ingress of water.[8]

Level	Protected against	Testing for	Details
0	Not protected	–	–
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.	Test duration: 10 minutes Water equivalent to 1 mm rainfall per minute
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.	Test duration: 10 minutes Water equivalent to 3 mm rainfall per minute
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.	Test duration: 5 minutes Water volume: 0.7 litres per minute Pressure: 80–100 kPa
4	Splashing of water	Water splashing against the enclosure from any direction shall have no harmful effect.	Test duration: 5 minutes Water volume: 10 litres per minute Pressure: 80–100 kPa
5	Water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.	Test duration: at least 15 minutes Water volume: 12.5 litres per minute Pressure: 30 kPa at distance of 3 m
6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 100 litres per minute Pressure: 100 kPa at distance of 3 m
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).	Test duration: 30 minutes Immersion at depth of at least 1 m measured at bottom of device, and at least 15 cm measured at top of device
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but	Test duration: continuous immersion in water Depth specified by manufacturer, generally up to
9k	Powerful high temperature water jets	Protected against close-range high pressure, high temperature spray downs.	–