Data types

All different data types will be shown in this page

DataPoint

Python

```python
class DataPoint:
    def __init__(self, x=0, y=0):
        self.x = x
        self.y = y
```

- `x` : Position at the mesure moment
  - type: `float`
  - Unity: `mm`
- `y` : Force at the mesure moment
  - Type: `float`
  - Unity: `N`

DataPointArray

Python

```python
class DataPointArray:
    def __init__(self, id=0, data_array=[]):
        self.id = id
        self.data_array = data_array
```

- `id` : Identification (or key) of this element on the data base.
  - type: `int`
  - Unity: `mm`
- `data_array` : Array of data points, this is the "reading" of an experiment.
  - Type: `[DataPoint...]`
  - Unity: N/A

AutoStopParams

Python

```python
class AutoStopParams:
    def __init__(self, force_loss=20, max_force=1000, max_travel=100, max_time=600):
        self.force_loss = force_loss
        self.max_force = max_force
        self.max_travel = max_travel
        self.max_time = max_time
```

- `force_loss` : Max force loss to trigger auto-stop.
  - Type: `float`
  - Unity: `%`
- `max_force` : Max force limit to trigger auto-stop.
  - Type: `float`
  - Unity: `N`
- `max_travel` : Max distance the experiment head can travel during the experiment.
  - Type: `float`
  - Unity: `mm`
- `max_time` : Experiment time limit.
  - Type: `float`
  - Unity: `s`

BodyParams

Python

```python
class BodyParams:
    def __init__(self, type=0, param_a=0, param_b=0, height=0):
        # Body format | 1 = Rectangle | 2 = Cylinder | 3 = Tube
        self.type = type

        # Rectangle = length | Cylinder = External diameter | Tube = External diameter
        self.param_a = param_a

        # Rectangle = depth | Cylinder = NULL | Tube = Internal diameter
        self.param_b = param_b

        # Height of the test body
        self.height = height
```

- `type` : Body format
  - 1 = Rectangle
  - 2 = Cylinder
  - 3 = Tube
  - Type: `int`
  - Unity: N/A
- `param_a` : Param 'a' of the body
  - Rectangle = length
  - Cylinder = External diameter
  - Tube = External diameter
  - Type: `float`
  - Unity: `mm`
- `param_b` : Param 'b' of the body
  - Rectangle = depth
  - Cylinder = NULL
  - Tube = Internal diameter
  - Type: `float`
  - Unity: `mm`
- `height` : Height of the test body
  - Type: `float`
  - Unity: `mm`

ExperimentParams

Python

```python
class ExperimentParams:
    def __init__(
        self,
        stop_params=AutoStopParams(),
        body_params=BodyParams(),
        compress=True,
        z_speed=5,
    ):
        self.stop_params = stop_params
        self.body_params = body_params
        self.compress = compress
        self.z_speed = z_speed
```

- `stop_params` : Auto stop parameters of the experiment.
  - Type: `AutoStopParams`
  - Unity: N/A
- `body_params` : Body parameters of the experiment.
  - Type: `BodyParams`
  - Unity: N/A
- `compress` : Dictates if the experiment head move up or down. true = compress | false = expand.
  - Type: `bool`
  - Unity: N/A
- `z_speed` : Z axis speed during the experiment.
  - Type: `float`
  - Unity: `mm/s`

Date

Python

```python
class Date:
    def __init__(
        self,
        day=1,
        month=1,
        year=2023,
    ):
        self.day = day
        self.month = month
        self.year = year
```

- `day` : Day.
  - Type: `int`
  - Unity: N/A
- `month` : Month.
  - Type: `int`
  - Unity: N/A
- `year` : Year.
  - Type: `int`
  - Unity: N/A

Experiment

Python

```python
class Experiment:
    def __init__(
        self,
        id=0,
        date=Date(),
        experiment_params=ExperimentParams(),
        data_array_id=0,
        extra_info="",
    ):
        self.experiment_params = experiment_params
        self.id = id
        self.data_array_id = data_array_id
        self.extra_info = extra_info
```

- `id` : id (or key) of the experiment on the data base.
  - Type: `int`
  - Unity: N/A
- `date` : Date of the experiment.
  - Type: `Date`
  - Unity: N/A
- `experiment_params` : Parameters of the experiment.
  - Type: `ExperimentParams`
  - Unity: N/A
- `data_array_id` : Identification (or key) of this experiment `DataPointArray` or "reading", on the data base
  - Type: `int`
  - Unity: N/A
- `extra_info` : Extra information about the experiment.
  - Type: `String`
  - Unity: N/A

Supplier

Python

```python
class Supplier:
    def __init__(self, name="NONE", email=""):
        self.name = name
        self.email = email
```

- `name` : Name of the material supplier.
  - Type: `String`
  - Unity: N/A
- `email` : E-mail of the supplier.
  - Type: `String`
  - Unity: N/A

Material

Python

```
class Material:
    def __init__(
        self, id=0, name="NONE", batch=0, experiment_array=[], supplier=Supplier(),
extra_info=""
    ):
        self.id = id
        self.name = name
        self.batch = batch
        # array of the ids of experiments with this material
        self.experiment_array = experiment_array
        self.supplier = supplier
        self.extra_info = extra_info
```

- `id` : Id (or key) of the material on the data base.
  - Type: `int`
  - Unity: N/A
- `name` : Name of the material.
  - Type: `String`
  - Unity: N/A
- `batch` : Batch of the material.
  - Type: `int`
  - Unity: N/A
- `experiment_array` : Array with the `ids` or `keys` of the experiments made with this material.
  - Type: `[int...]`
  - Unity: N/A
- `supplier` : Supplier of the material.
  - Type: `Supplier`
  - Unity: N/A
- `extra_info` : Extra information about the material.
  - Type: `String`
  - Unity: N/A