

The Smart Extrusion Technology

It all began with special purpose machine building. After many years of experience with the extrusions of various manufacturers we decided to develop our own Extrusion Technology. This was to form the basis of our own complete Modular Automation System. The result is maximum design and assembly possibilities with minimal time investment. Robotunits offers a system that will meet your highest expectations.

The key element of the Modular Automation System is a unique Extrusion Technology, available in 40 mm and 50 mm size systems, which are fully compatible with each other and all other components. They utilize one slot size that allows new dimensions in design and assembly speed.



Compatibility saves time

- a total of 12 shapes of 40 mm and 50 mm extrusion sizes simplify design and installation
- all extrusions are compatible with one another
- minimal training time
- minimal design time
- quick and easy assembly



One slot size fits all

- uniform slot size allows compatibility of all extrusions
- the design of this extra large slot (14 mm wide, 14 mm deep) allows for stronger hardware and post assembly insertion of Drop-In-Nuts
- post insertion of heavy duty nuts up to M10 possible



Tubular honeycomb structure

- the section modulus of a 50 mm by 50 mm extrusion is equivalent to the section modulus of a 50 mm by 50 mm steel tube with a 3 mm wall thickness
- the section modulus of the 50 mm by 50 mm extrusion is 30 % to 40 % higher than that of a 40 mm by 40 mm extrusion of comparable weight
- outstanding torsion and load resistance
- greater strength with less material means cost savings



All you need to know is the extrusion length

- when you place an order, simply specify the desired length
- every extrusion is labeled prior to shipment (stock length, part number and position number, etc.)
- label information eliminates the measuring of extrusions prior to assembly



Large slot depth guarantees maximum strength of connection

- maximum thread engagement for all screws up to M8 drop-in-nuts provides extra strength
- no need for bolt length adjustment
- thread depth is always greater than diameter of screw



Precision is our standard

- integrated location groove guarantees precise and straight drilling
- 45° chamfered edges for easy attachment and visual continuity



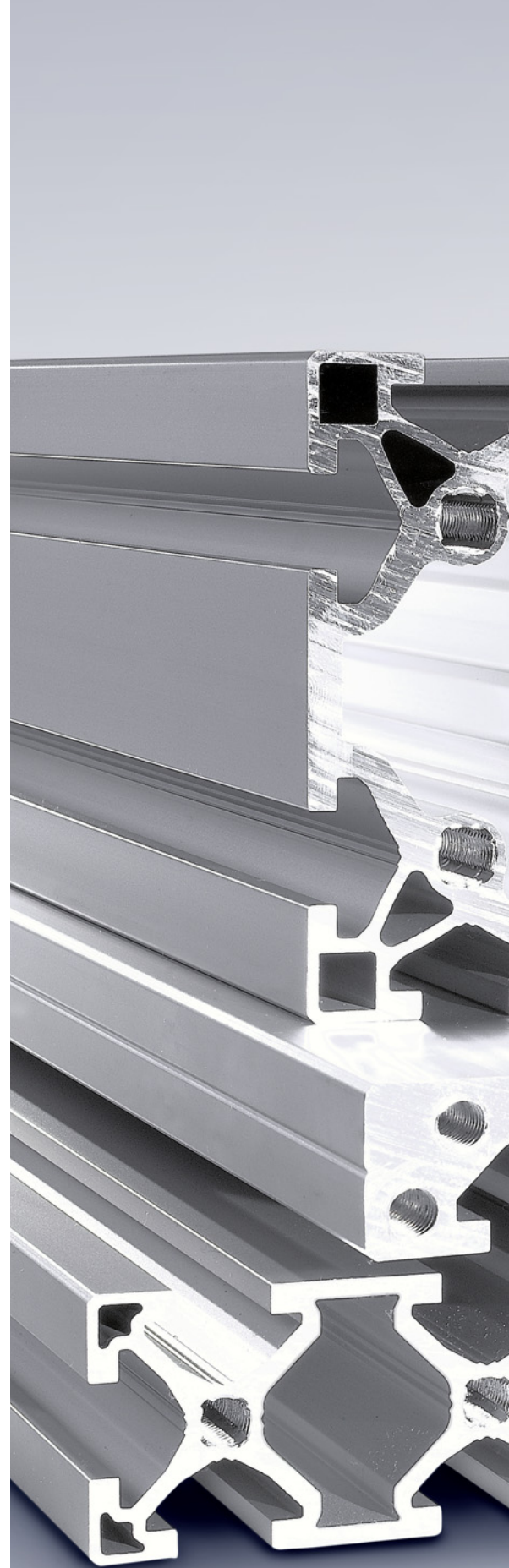
Vibration resistance through preloading

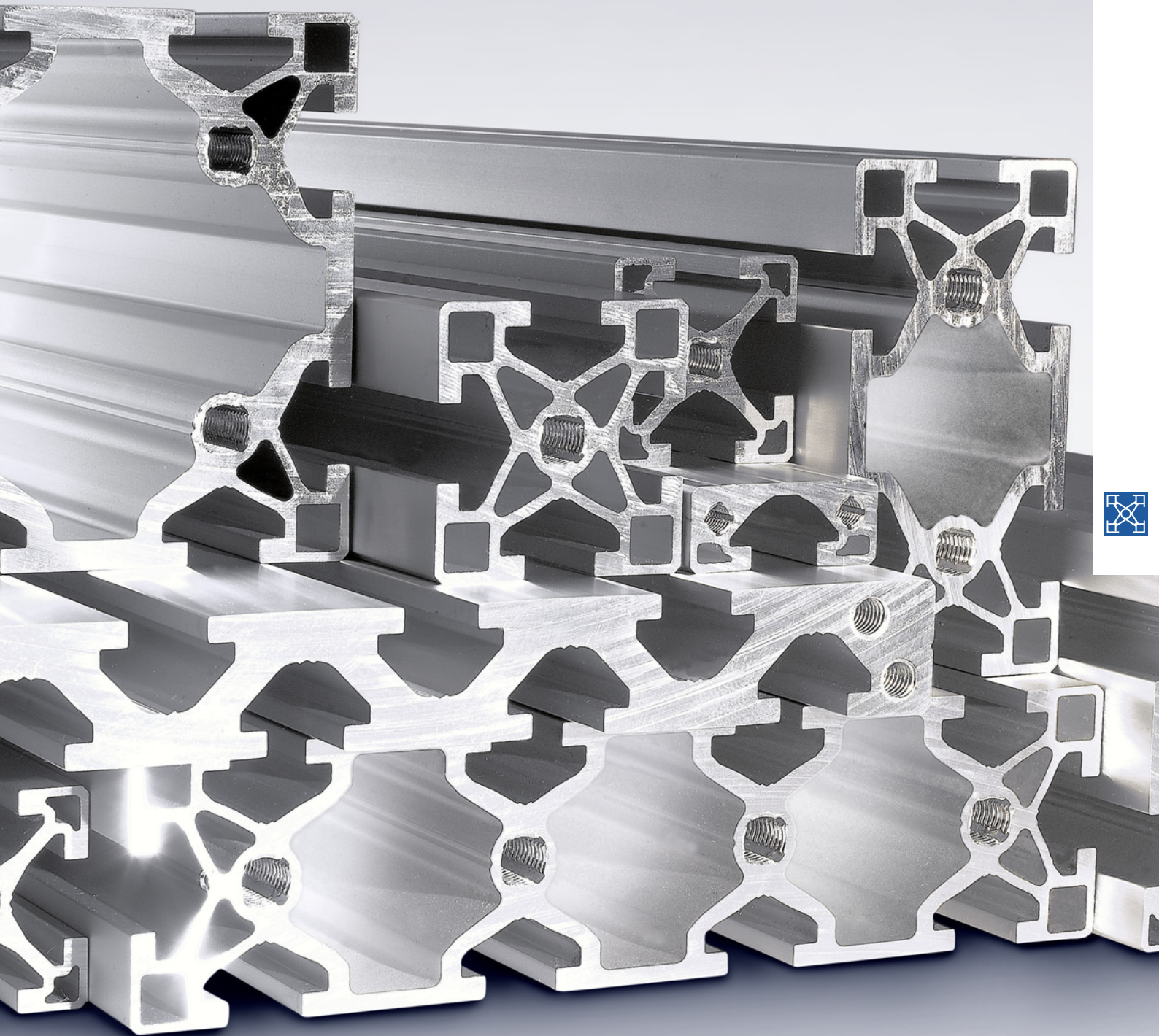
- concave surface of extrusion guarantees durable vibration resistance
- maximum wall thickness at key points prevents crimping
- no additional washers required for full contact



Save time, cut cost

- easy to understand product range
- easy to order, only length specifications are required
- no detailed specifications needed for connectors
- labeled and tapped extrusions allow immediate assembly







The Smart Extrusion Technology

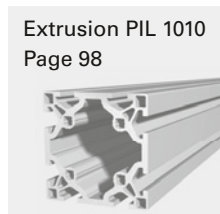
Extrusion, 40 mm Series

Page 92



Extrusion, 50 mm Series

Page 96



PIL 1640

Extrusion

**Tolerances and Deflection**

see pages 182 to 184

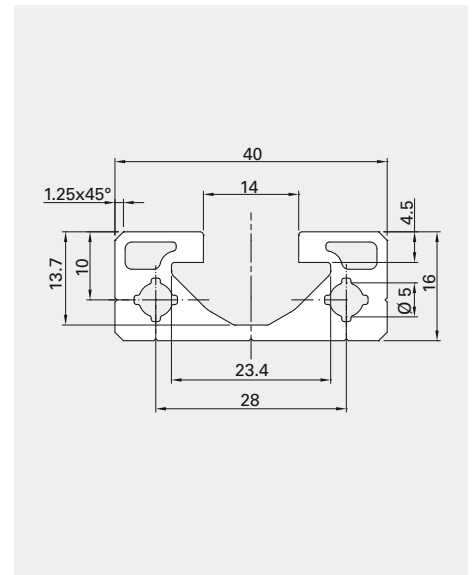
Application

- Signs, Shelves, racks
- Hand rails, guide rails
- MRO equipment
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

| | | |
|----------------------------------------|---------|-----------------------|
| Section modulus | W_x : | 2.9 cm ³ |
| Section modulus | W_y : | 1.0 cm ³ |
| Moment of inertia | I_x : | 5.8 cm ⁴ |
| Moment of inertia | I_y : | 0.8 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 0.6 cm ⁴ |
| Cross sectional area | A: | 323.6 mm ² |

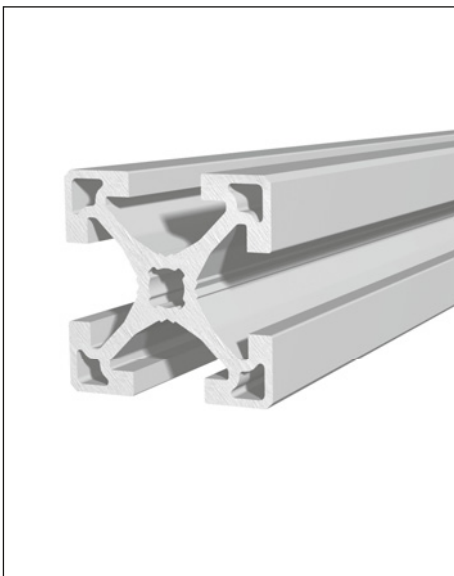


Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|--------------------------------------------------------------|--------------------------|-------|--------------|
| | Length | | |
| Extrusion, cut to length, M6 tapped on both ends, 15 mm deep | PIL 1640 SNN | _____ | 0.890 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 1640 NNN | 6050 | 0.890 kg |

PIL 4040

Extrusion

**Tolerances and Deflection**

see pages 182 to 184

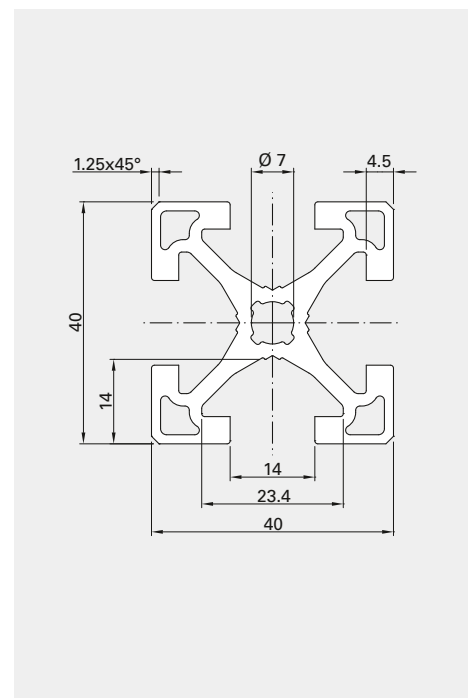
Application

- Machine guardings
- Enclosures
- Safety fence panels & doors
- Light weight machine frames
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

| | | |
|----------------------------------------|---------------|-----------------------|
| Section modulus | $W_x = W_y$: | 4.31 cm ³ |
| Moment of inertia | $I_x = I_y$: | 8.6 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 0.71 cm ⁴ |
| Cross sectional area | A: | 554.6 mm ² |



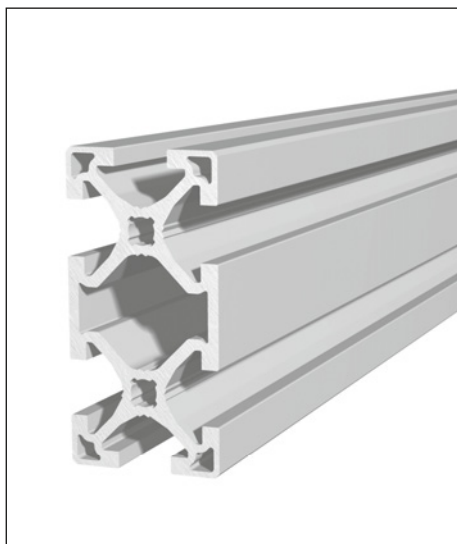
Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|-------|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 50 mm deep | PIL 4040 SNN | _____ | 1.530 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 4040 NNN | 6050 | 1.530 kg |
| Extrusions, 80 units, stock length 6050 (usable length 6000 mm) | PIL 4040 PAC | 0080 | 1.530 kg |

1) Please complete the order code by adding the desired length. Drawing dimensions in mm

PIL 4080

Extrusion



Tolerances and Deflection

see pages 182 to 184

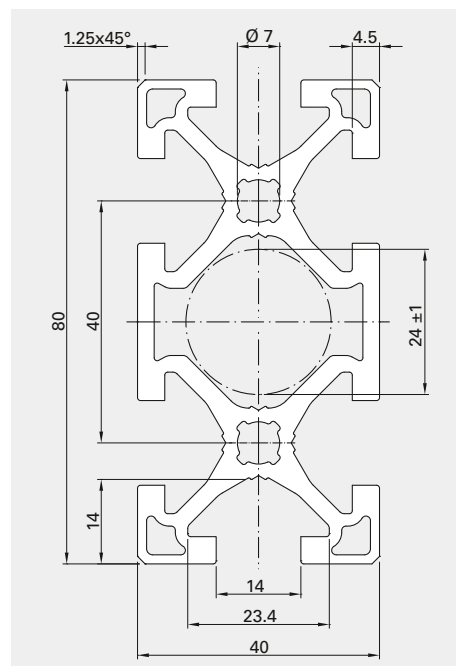
Application

- Machine guardings
- Enclosures
- Safety fence panels & doors
- Machine frames
- Workstations
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

| | | |
|----------------------------------------|---------|------------------------|
| Section modulus | W_x : | 15.56 cm ³ |
| Section modulus | W_y : | 8.40 cm ³ |
| Moment of inertia | I_x : | 62.25 cm ⁴ |
| Moment of inertia | I_y : | 16.80 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 9.30 cm ⁴ |
| Cross sectional area | A: | 1013.2 mm ² |



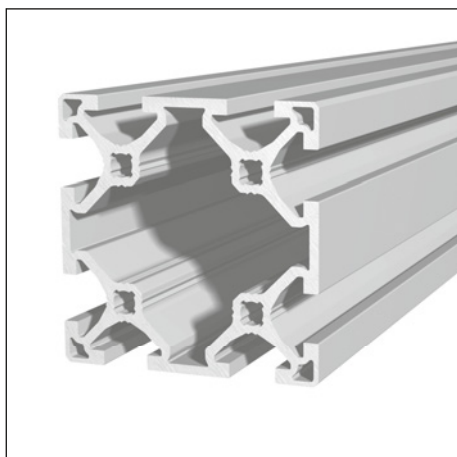
Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|-------|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 50 mm deep | PIL 4080 SNN | _____ | 2.780 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 4080 NNN | 6050 | 2.780 kg |
| Extrusions, 40 units, stock length 6050 (usable length 6000 mm) | PIL 4080 PAC | 0040 | 2.780 kg |



PIL 8080

Extrusion



Tolerances and Deflection

see pages 182 to 184

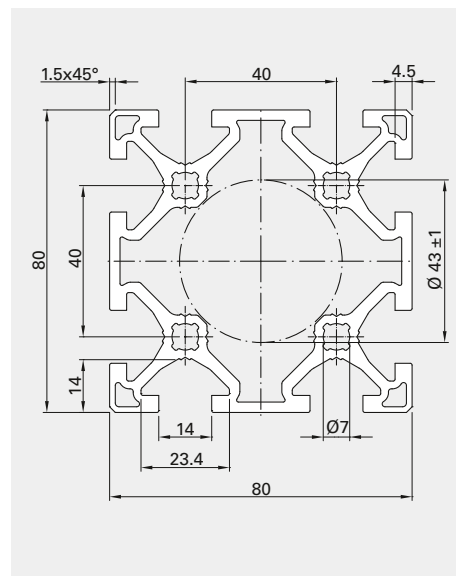
Application

- Machine frames
- Workstations
- Machine guardings
- Enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

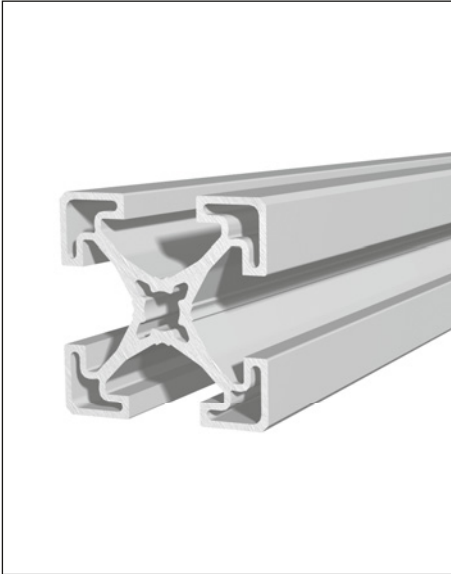
| | | |
|----------------------------------------|---------------|------------------------|
| Section modulus | $W_x = W_y$: | 28.4 cm ³ |
| Moment of inertia | $I_x = I_y$: | 113.6 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 59.5 cm ⁴ |
| Cross sectional area | A: | 1547.1 mm ² |



Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|-------|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 50 mm deep | PIL 8080 SNN | _____ | 4.280 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 8080 NNN | 6050 | 4.280 kg |
| Extrusions, 25 units, stock length 6050 (usable length 6000 mm) | PIL 8080 PAC | 0025 | 4.280 kg |

1) Please complete the order code by adding the desired length. Drawing dimensions in mm

**Application**

- Machine guardings
- Enclosures
- Safety fence panels
- Light weight machine frames
- Workstations
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

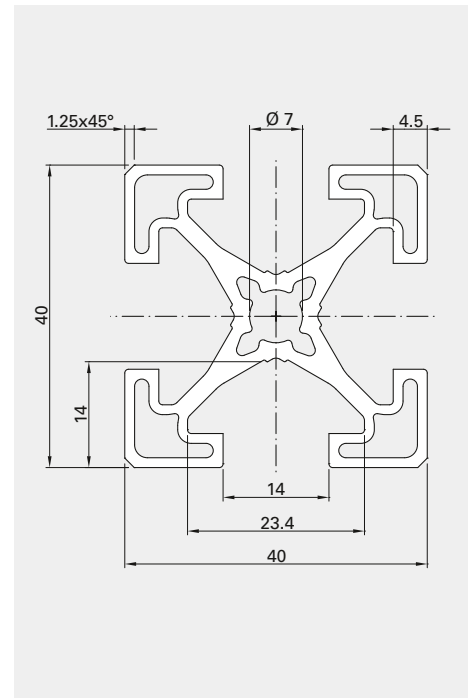
Material: EN AW-6063-T66 clear anodized aluminum

Section modulus $W_x = W_y: 3.28 \text{ cm}^3$

Moment of inertia $I_x = I_y: 6.45 \text{ cm}^4$

Area moment of inertia against torsion $I_t: 0.62 \text{ cm}^4$

Cross sectional area $A: 431.0 \text{ mm}^2$

**Tolerances and Deflection**

see pages 182 to 184

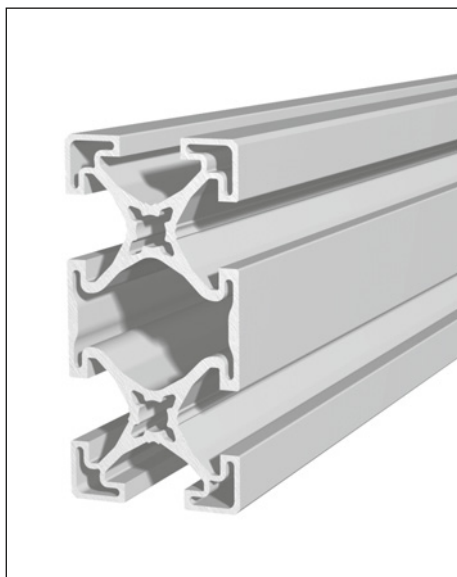
Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|--|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 50 mm deep | PIL 4140 SNN ____ | | 1.160 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 4140 NNN 6050 | | 1.160 kg |
| Extrusions, 80 units, stock length 6050 (usable length 6000 mm) | PIL 4140 PAC 0080 | | 1.160 kg |

1) Please complete the order code by adding the desired length
Diagram dimensions in mm

PIL 4180

Lean Line Extrusion

**Tolerances and Deflection**

see pages 182 to 184

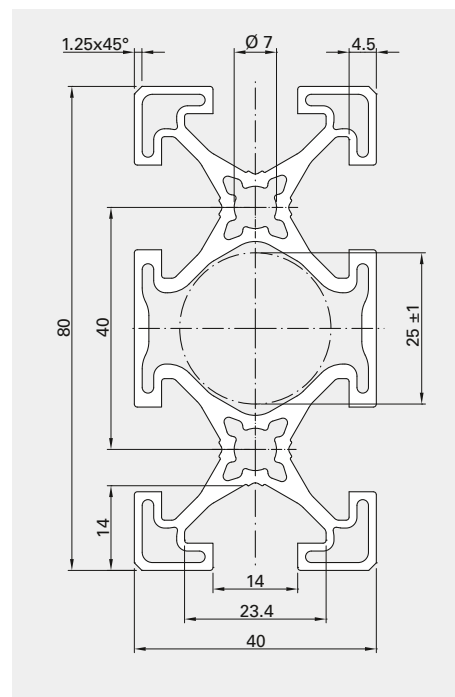
Application

- Machine guardings
- Enclosures
- Safety fence panels
- Light weight machine frames
- Workstations
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear
anodized aluminum

| | | |
|-------------------------------------------|---------|-----------------------|
| Section modulus | W_x : | 11.84 cm ³ |
| Section modulus | W_y : | 6.34 cm ³ |
| Moment of inertia | I_x : | 47.35 cm ⁴ |
| Moment of inertia | I_y : | 12.69 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 5.94 cm ⁴ |
| Cross sectional area | A: | 790.8 mm ² |

**Order Code**

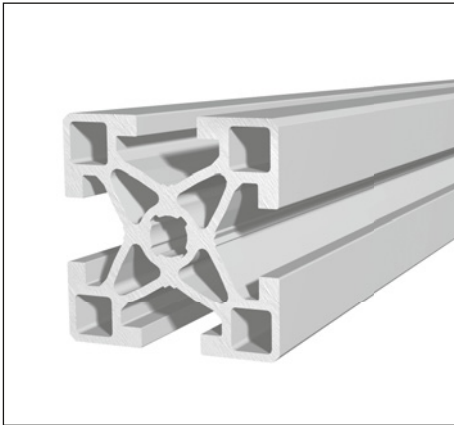
| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|-------|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 50 mm deep | PIL 4180 SNN | _____ | 2.140 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 4180 NNN | 6050 | 2.140 kg |
| Extrusions, 40 units, stock length 6050 (usable length 6000 mm) | PIL 4180 PAC | 0040 | 2.140 kg |



1) Please complete the order code by adding the desired length
Diagram dimensions in mm

PIL 5050

Extrusion

**Tolerances and Deflection**

see pages 182 to 184

Application

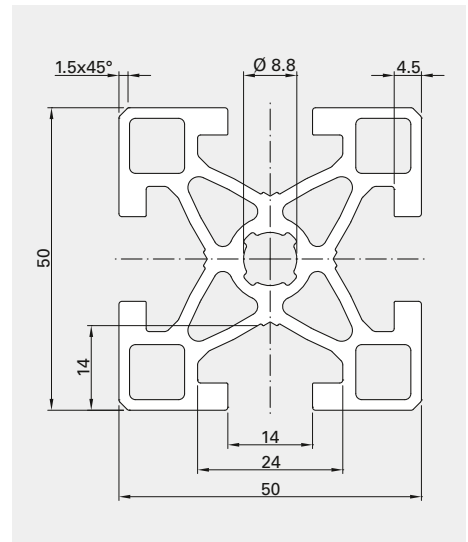
- Machine frames
- Robot frame structures
- Workstations
- Machine guardings
- Enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

Section modulus $W_x = W_y: 8.02 \text{ cm}^3$ Moment of inertia $I_x = I_y: 20.00 \text{ cm}^4$

Area moment of inertia

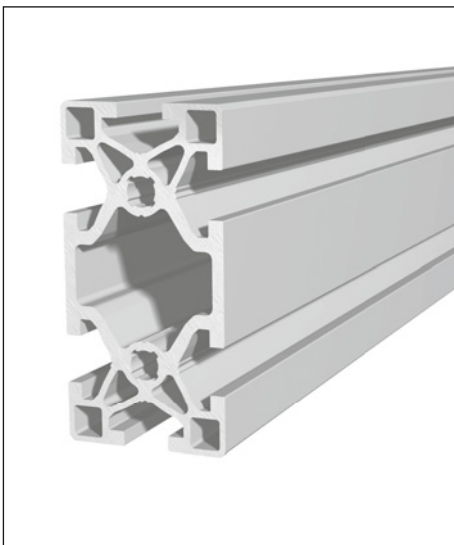
against torsion $I_t: 4.80 \text{ cm}^4$ Cross sectional area $A: 857.5 \text{ mm}^2$ 

Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|------|--------------|
| | Length | | |
| Extrusion, cut to length, M10 tapped on both ends, 50 mm deep | PIL 5050 SNN | ___ | 2.350 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 5050 NNN | 6050 | 2.350 kg |
| Extrusions, 64 units, stock length 6050 (usable length 6000 mm) | PIL 5050 PAC | 0064 | 2.350 kg |

PIL 5010

Extrusion

**Tolerances and Deflection**

see pages 182 to 184

Application

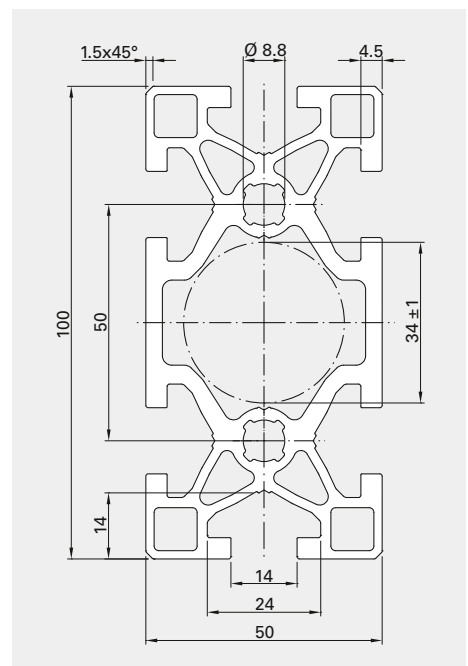
- Machine frames
- Robot frame structures
- Workstations
- Base support for Linear Motion Units & gantries
- Machine guardings
- Enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

Section modulus $W_x: 30.0 \text{ cm}^3$ Section modulus $W_y: 16.6 \text{ cm}^3$ Moment of inertia $I_x: 150.0 \text{ cm}^4$ Moment of inertia $I_y: 41.4 \text{ cm}^4$

Area moment of inertia

against torsion $I_t: 37.0 \text{ cm}^4$ Cross sectional area $A: 1559.3 \text{ mm}^2$ 

Order Code

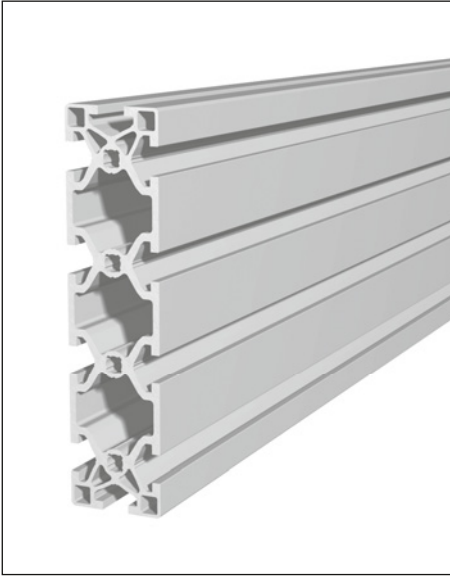
| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|------|--------------|
| | Length | | |
| Extrusion, cut to length, M10 tapped on both ends, 50 mm deep | PIL 5010 SNN | ___ | 4.290 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 5010 NNN | 6050 | 4.290 kg |
| Extrusions, 32 units, stock length 6050 (usable length 6000 mm) | PIL 5010 PAC | 0032 | 4.290 kg |

1) Please complete the order code by adding the desired length

Diagram dimensions in mm

PIL 5020

Extrusion



Tolerances and Deflection
see pages 182 to 184

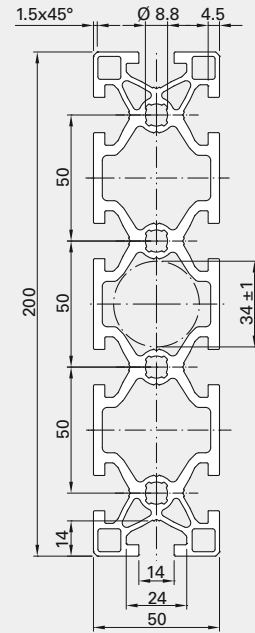
Application

- Heavy duty machine frames
- Robot frame structures
- Workstations
- Base support for Linear Motion Units & gantries
- Machine guardings
- Enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

| | | |
|----------------------------------------|---------|-------------------------|
| Section modulus | W_x : | 112.37 cm ³ |
| Section modulus | W_y : | 33.70 cm ³ |
| Moment of inertia | I_x : | 1123.70 cm ⁴ |
| Moment of inertia | I_y : | 84.20 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 107.00 cm ⁴ |
| Cross sectional area | A: | 2962.8 mm ² |



Order Code

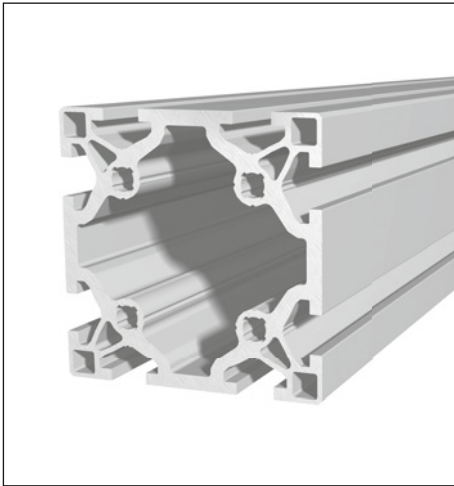
| Description | Order Code ¹⁾ | | Weight/Meter |
|-----------------------------------------------------------------|--------------------------|--|--------------|
| | Length | | |
| Extrusion, cut to length, M10 tapped on both ends, 50 mm deep | PIL 5020 SNN ____ | | 8.150 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 5020 NNN 6050 | | 8.150 kg |
| Extrusions, 16 units, stock length 6050 (usable length 6000 mm) | PIL 5020 PAC 0016 | | 8.150 kg |

1) Please complete the order code by adding the desired length
Diagram dimensions in mm



PIL 1010

Extrusion

**Tolerances and Deflection**

see pages 182 to 184

Application

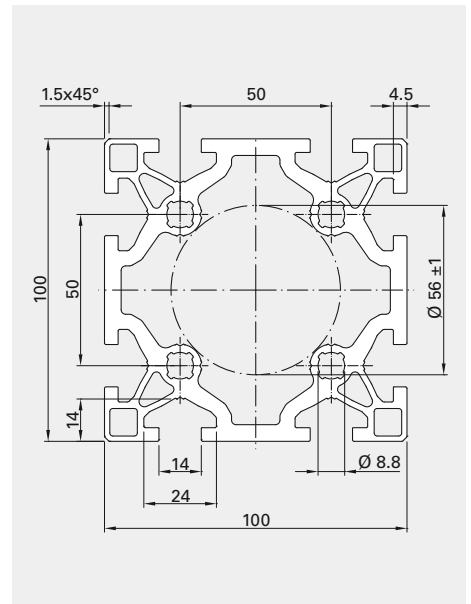
- Heavy duty machine frames
- Robot frame structures
- Workstations
- Base support for Linear Motion Units & gantries
- Machine guardings
- Enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

Section modulus $W_x = W_y$: 61.7 cm³Moment of inertia $I_x = I_y$: 308.3 cm⁴

Area moment of inertia

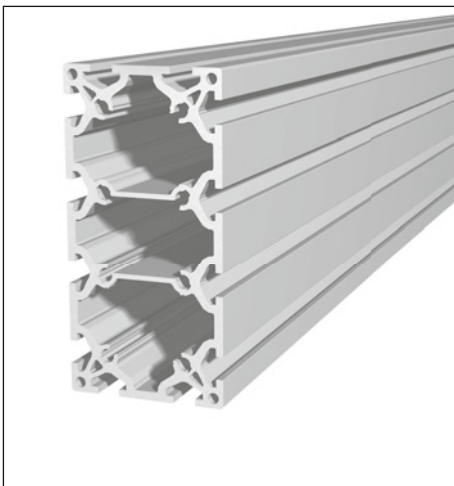
against torsion I_t : 256.0 cm⁴Cross sectional area A: 2714.4 mm²

Order Code

| Description | Order Code ¹⁾ | |
|-----------------------------------------------------------------|--------------------------|--------------|
| | Length | Weight/Meter |
| Extrusion, cut to length, M10 tapped on both ends, 50 mm deep | PIL 1010 SNN ____ | 7.480 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 1010 NNN 6050 | 7.480 kg |
| Extrusions, 16 units, stock length 6050 (usable length 6000 mm) | PIL 1010 PAC 0016 | 7.480 kg |

PIL 1020

Extrusion

**Tolerances and Deflection**

see pages 182 through 184

Connecting plate available on request

Application

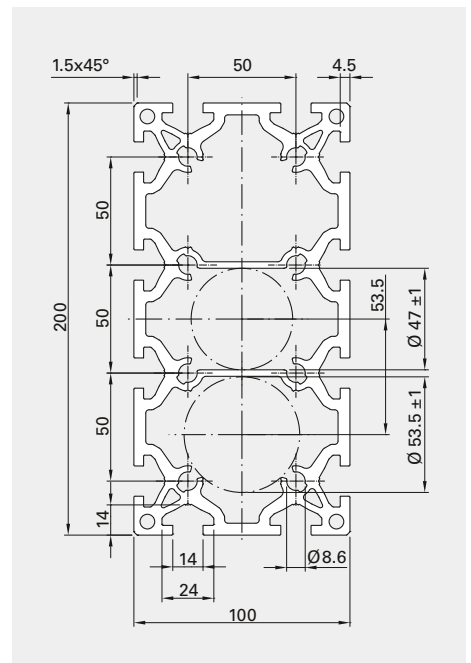
- Heavy duty machine frames
- Robot frame structures
- Workstations
- Base support for Linear Motion Units & gantries
- Machine guardings
- Machine enclosures
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical Data

Material: EN AW-6063-T66 clear anodized aluminum

Section modulus W_x : 218.1 cm³Section modulus W_y : 131.8 cm³Moment of inertia I_x : 2181.0 cm⁴Moment of inertia I_y : 659.0 cm⁴

Area moment of inertia

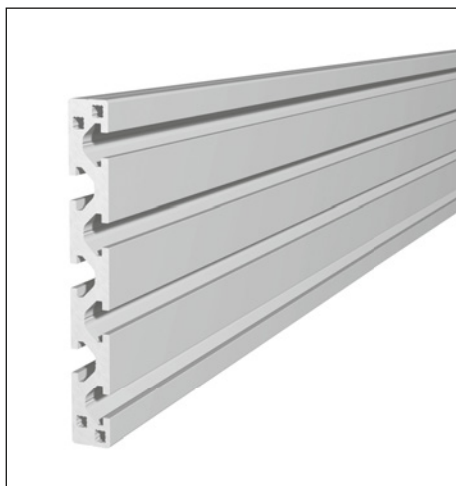
against torsion I_t : 794.0 cm⁴Cross sectional area A: 5128.7 mm²

Order Code

| Description | Order Code ¹⁾ | |
|----------------------------------------------------------------|--------------------------|--------------|
| | Length | Weight/Meter |
| Extrusion, cut to length, M10 tapped on both ends, 50 mm deep | PIL 1020 SNN ____ | 13.700 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 1020 NNN 6050 | 13.700 kg |
| Extrusions, 8 units, stock length 6050 (usable length 6000 mm) | PIL 1020 PAC 0008 | 13.700 kg |

PIL 2520

Extrusion

**Tolerances and Deflection**

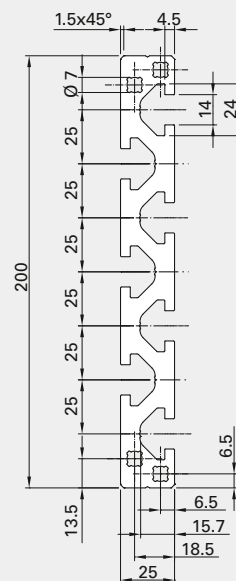
see pages 182 to 184

Application

- Carriage plates for Linear Motion Units
- Workstations
- Shelves, racks, trolleys (MRO equipment)
- etc.

Technical DataMaterial: EN AW-6063-T66 clear
anodized aluminum

| | | |
|-------------------------------------------|---------|------------------------|
| Section modulus | W_x : | 106.0 cm ³ |
| Section modulus | W_y : | 14.2 cm ³ |
| Moment of inertia | I_x : | 1056.0 cm ⁴ |
| Moment of inertia | I_y : | 17.7 cm ⁴ |
| Area moment of inertia against torsion | I_t : | 9.8 cm ⁴ |
| Cross sectional area | A: | 2891.7 mm ² |



Order Code

| Description | Order Code ¹⁾ | | Weight/Meter |
|--------------------------------------------------------------|--------------------------|--|--------------|
| | Length | | |
| Extrusion, cut to length, M8 tapped on both ends, 15 mm deep | PIL 2520 SNN _____ | | 7.900 kg |
| Extrusion, stock length: 6050 mm (usable length 6000 mm) | PIL 2520 NNN 6050 | | 7.900 kg |

1) Please complete the order code by adding the desired length

Drawing dimensions in mm

