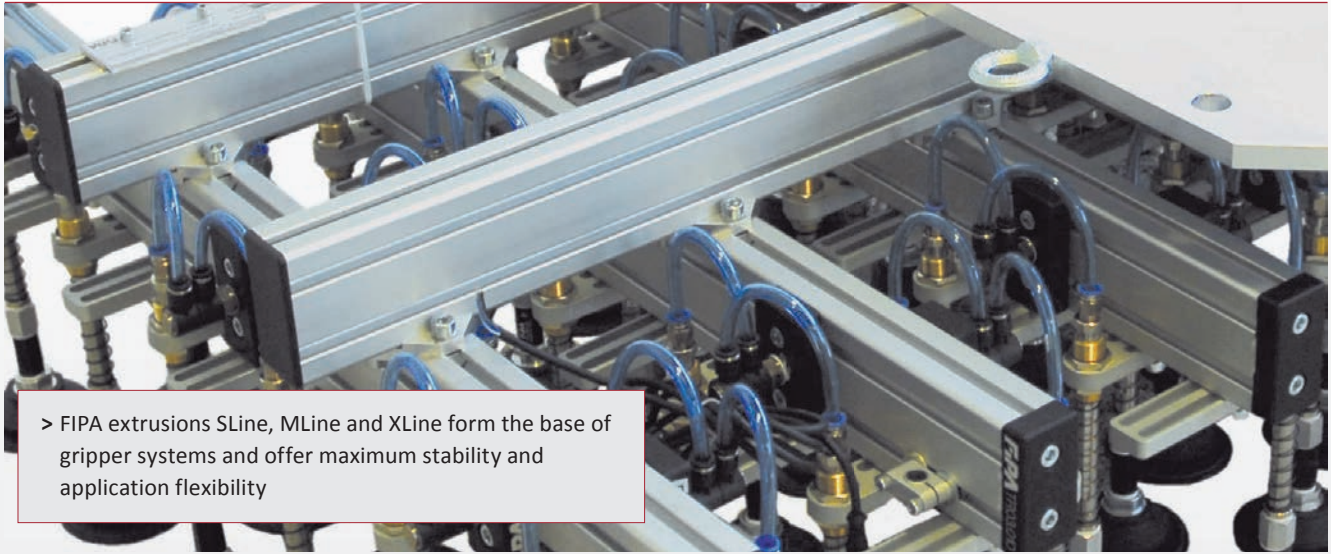




## FIPA Extrusions



> FIPA extrusions SLine, MLine and XLine form the base of gripper systems and offer maximum stability and application flexibility



### SLine and MLine

- > Base for grippers with spans up to 1 m and loads up to approx. 5 kg
- > Stable and lightweight
- > See page 52



### XLine

- > Base for grippers with spans exceeding 1 m and loading capacity exceeding 5 kg
- > Torsionally rigid for maximum stability even with high loads
- > See page 55



### Angle clamps

- > Integration of gripper elements or vacuum cups
- > Clamping diameters 10, 14, 20 and 30 mm
- > Fits to extrusions from FIPA as well as third-party products



### Profile connectors

- > Angle variable, rigid connection of two extrusions

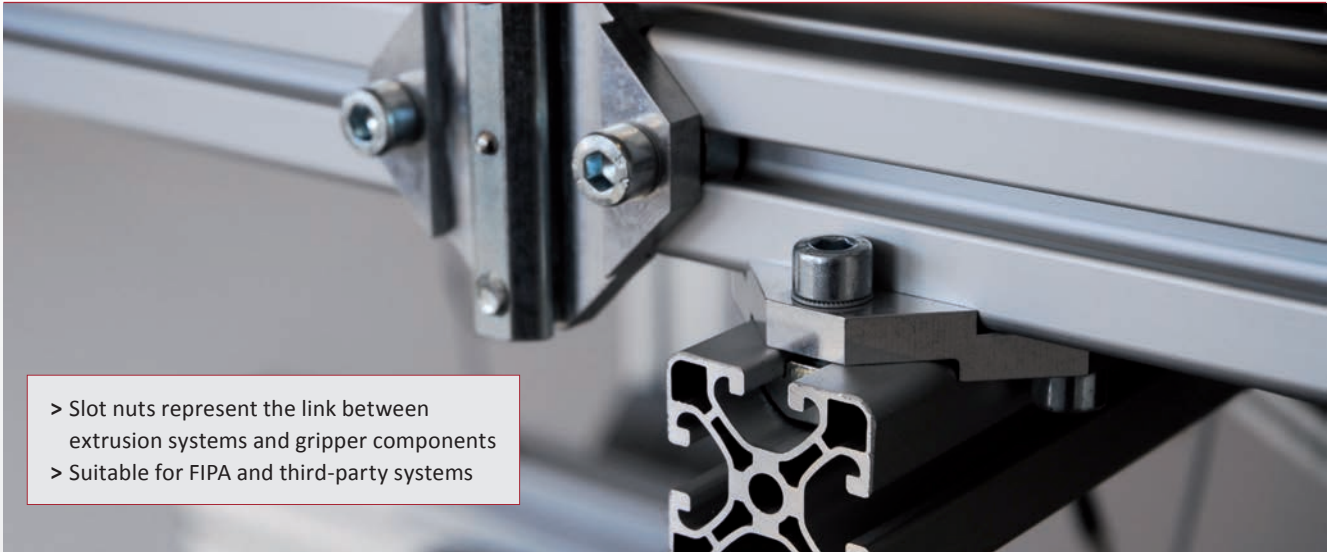


### Clamping screws

- > Internal and external hex bits for easy assembly even in restricted spaces



FIPA Slot nuts



- > Slot nuts represent the link between extrusion systems and gripper components
- > Suitable for FIPA and third-party systems



**Threaded slot nuts – universal**

- > For inserting into the extrusion groove
  - > Suitable for extrusion systems SLine, MLine and XLine as well as third-party products
  - > Existing components from other suppliers can still be used
- > See page 58



**Threaded slot nuts – swivel-in**

- > Slot nuts can be rotated in or out even after the assembly of the gripper system
  - > Quick and flexible extension and adaption of gripper systems without disassembly
- > See page 62



**Installation examples**

- > Using the same universal slot nut in FIPA and third-party extrusions
- > Example with third-party extrusions 25 x 25 mm



- > Example with FIPA SLine 20 x 20 mm



### SLine extrusions



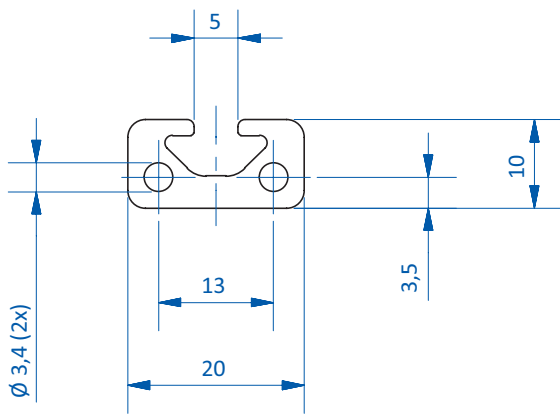
#### Product notes

- > Lightweight and rigid
- > Material: AlMgSi 0.5 F25
- > Special lengths over 2,000 mm on request

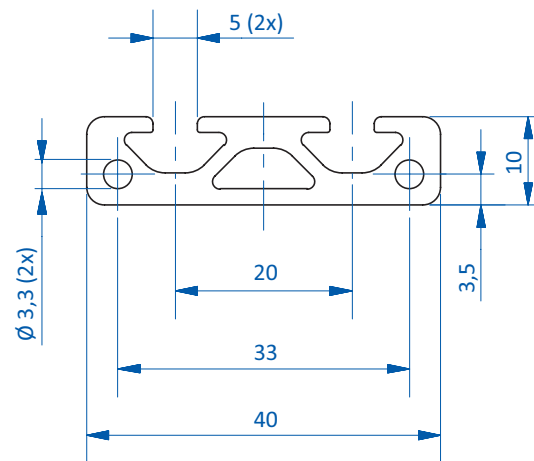
#### Technical data

Item no.	Length [mm]	Weight [kg/m]	Cross-section area [cm <sup>2</sup> ]	Moment of plane area axial Ix [cm <sup>4</sup> ]	Moment of plane area axial Iy [cm <sup>4</sup> ]	Moment of resistance axial Wx [cm <sup>3</sup> ]	Moment of resistance axial Wy [cm <sup>3</sup> ]	Suitable end caps
GR01.001.2000	1,960	0.35	1.28	0.12	0.53	0.22	0.53	GR01.010 (p.57)
GR01.002.2000	1,960	0.63	2.34	0.24	3.59	0.45	1.8	GR01.011 (p.57)
GR01.003.2000	1,960	0.48	1.8	0.74	0.74	0.74	0.74	GR01.012 (p.57)
GR01.004.2000	1,960	0.87	3.22	1.39	5.16	1.39	2.53	GR01.013 (p.57)
GR01.006.2000	1,960	1.67	6.06	2.68	35.8	2.68	8.95	GR01.015 (p.57)
GR01.007.2000	1,960	1.33	4.94	9.16	9.16	4.53	4.53	GR01.016 (p.57)

#### Dimensions



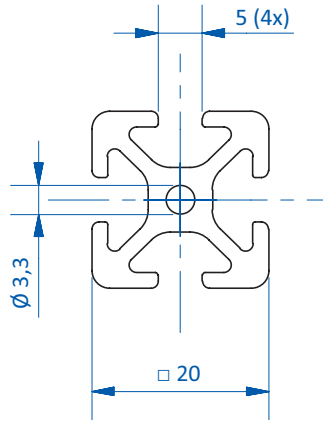
GR01.001.2000



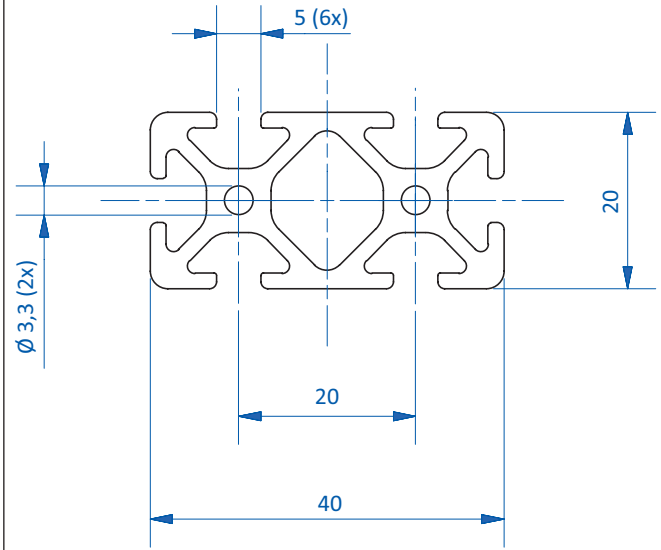
GR01.002.2000



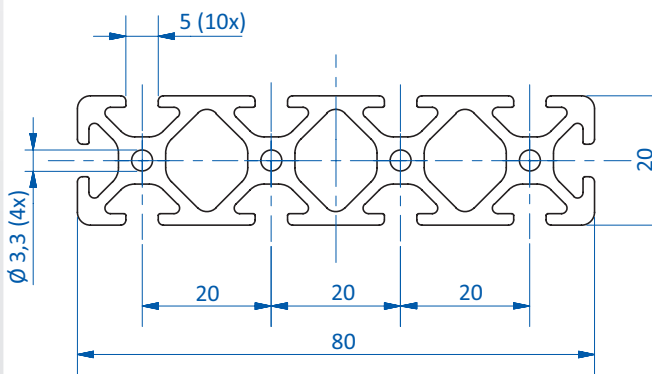
Dimensions



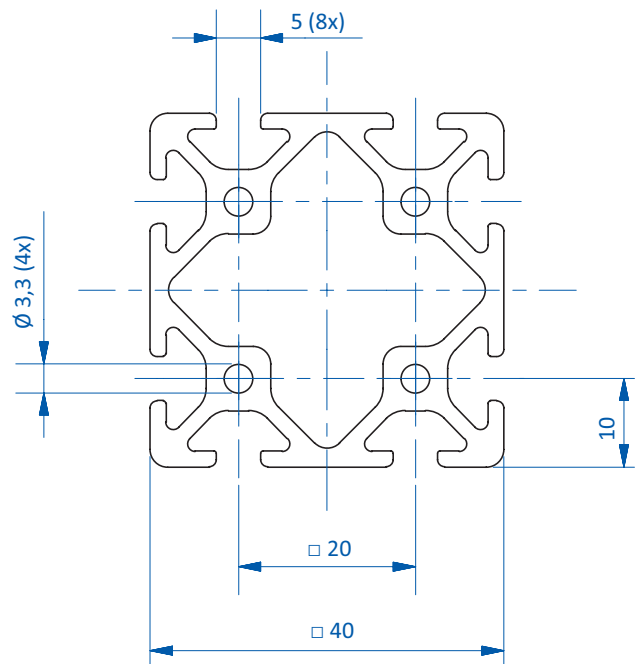
GR01.003.2000



GR01.004.2000



GR01.006.2000



GR01.007.2000



### MLine extrusions



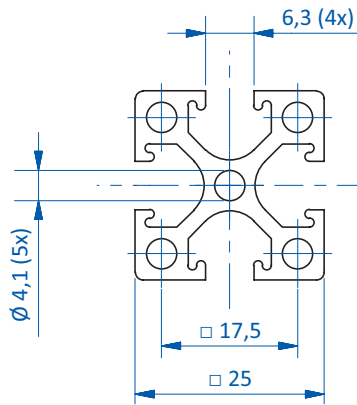
#### Product notes

- > Lightweight and rigid
- > Material: AlMgSi 0.5 F25
- > Special lengths over 2,000 mm on request

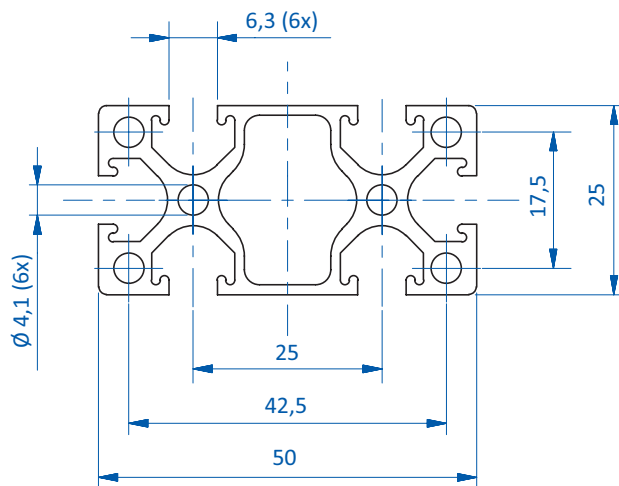
#### Technical data

Item no.	Length [mm]	Weight [kg/m]	Cross-section area [cm <sup>2</sup> ]	Moment of plane area axial Ix [cm <sup>4</sup> ]	Moment of plane area axial Iy [cm <sup>4</sup> ]	Moment of resistance axial Wx [cm <sup>3</sup> ]	Moment of resistance axial Wy [cm <sup>3</sup> ]	Suitable end caps
GR01.008.2000	1,960	0.61	2.48	1.58	1.58	1.26	1.26	GR01.017 (p.57)
GR01.009.2000	1,960	1.04	4.27	10.89	2.85	4.36	2.28	GR01.018 (p.57)

#### Dimensions



GR01.008.2000



GR01.009.2000



XLine extrusions



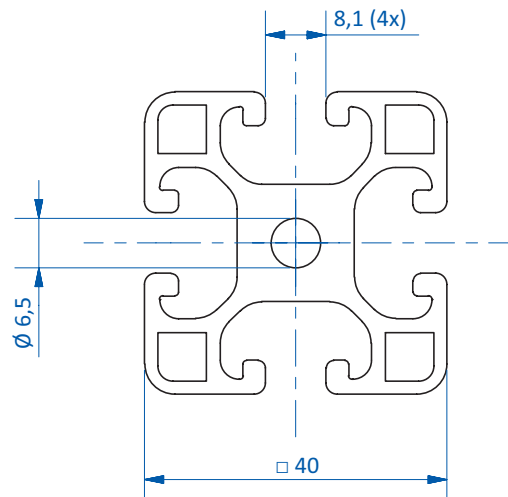
Product notes

- > High rigidity
- > Material: AlMgSi 0.5 F25
- > Special lengths over 2,000 mm on request

Technical data

Item no.	Length [mm]	Weight [kg/m]	Cross-section area [cm <sup>2</sup> ]	Moment of plane area axial Ix [cm <sup>4</sup> ]	Moment of plane area axial Iy [cm <sup>4</sup> ]	Moment of resistance axial Wx [cm <sup>3</sup> ]	Moment of resistance axial Wy [cm <sup>3</sup> ]	Suitable end caps
GR-XL01.003.2000	1,960	1.36	5.04	7.34	7.34	3.67	3.67	GR-XL01.012 (p.57)
GR-XL01.004.2000	1,960	2.37	8.73	14.7	57.7	7.37	14.4	GR-XL01.013 (p.57)
GR-XL01.005.2000	1,960	5.19	19.2	131	131	32.8	32.8	--

Dimensions

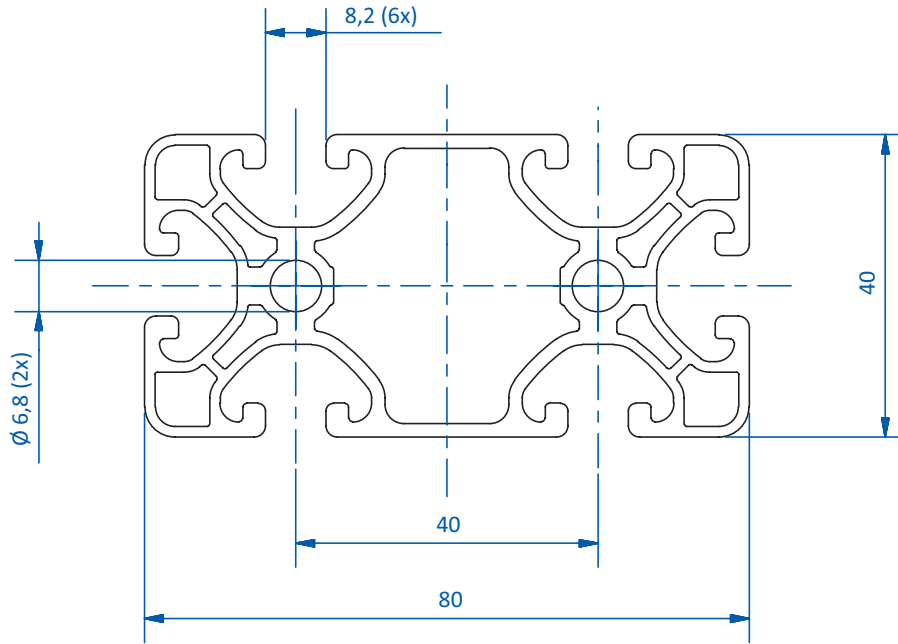


GR-XL01.003.2000

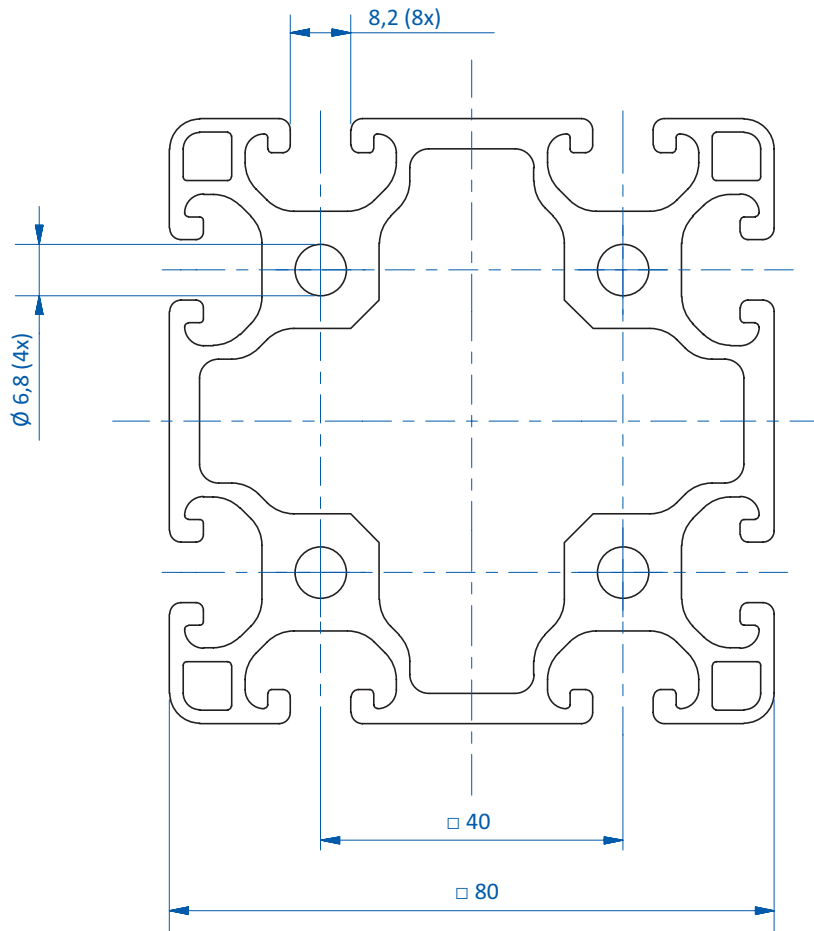
Continued on the next page →



Dimensions



GR-XL01.004.2000



GR-XL01.005.2000



End caps



Product notes

- > For installation at the end of extrusion, reducing the risk of injury
- > Material: PA6 black

Technical data

Item no.	Suitable for extrusion system
GR01.010	SLine
GR01.011	SLine
GR01.012	SLine
GR01.013	SLine
GR01.015	SLine
GR01.016	SLine
GR01.017	MLine
GR01.018	MLine
GR-XL01.012	XLine
GR-XL01.013	XLine

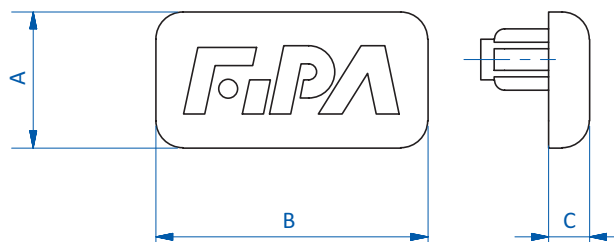
Dimensions

A [mm]	B [mm]	C [mm]
10	20	3
10	40	3
20	20	3
20	40	3
20	80	3
40	40	3
25	25	3
25	50	3
40	40	4
40	80	4

Application examples



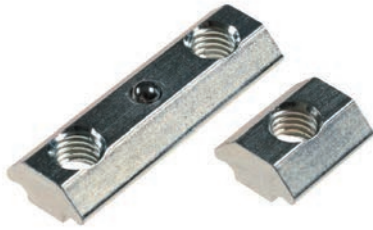
Dimensions







### Threaded slot nuts – universal



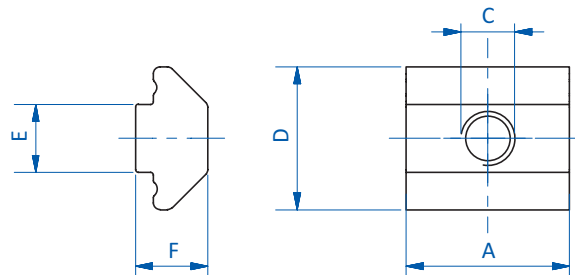
#### Product notes

- > Galvanized steel slot nuts
- > Ball catch prevents slipping of slot nut during installation
- > Compatible with many third-party extrusions

#### Technical data

Item no.	Suitable for extrusion system	With ball catch	Weight [g]
GR01.088A	SLine / MLine	--	2
GR01.089A	SLine / MLine	--	3
GR01.090A	SLine / MLine	--	6
GR01.091A	SLine / MLine	Yes	6
GR01.092A	SLine / MLine	Yes	8
GR01.093A	SLine / MLine	Yes	9
GR01.094A	SLine / MLine	Yes	12
GR01.095A	SLine / MLine	Yes	13
GR01.096A	SLine / MLine	Yes	20
GR01.097A	SLine / MLine	--	2
GR01.098A	SLine / MLine	--	5
GR01.101A	SLine / MLine	Yes	12
GR01.102A	SLine / MLine	Yes	20
GR-XL01.100	XLine	Yes	17
GR-XL01.101	XLine	Yes	21
GR-XL01.102	XLine	Yes	35
GR-XL01.103	XLine	Yes	57
GR-XL01.104	XLine	Yes	94
GR-XL01.106	XLine	Yes	18

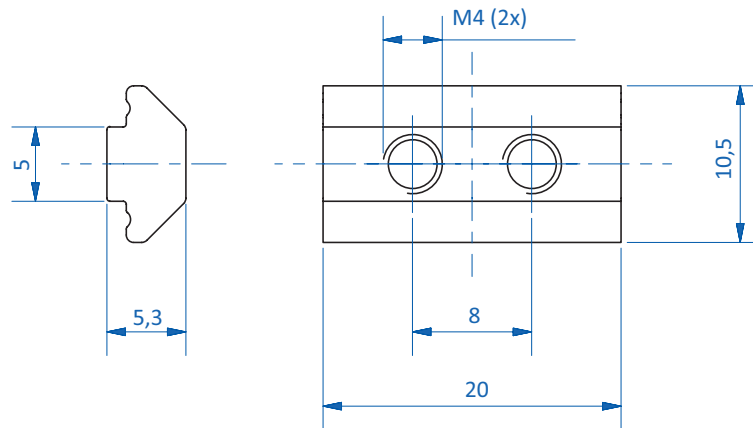
#### Dimensions



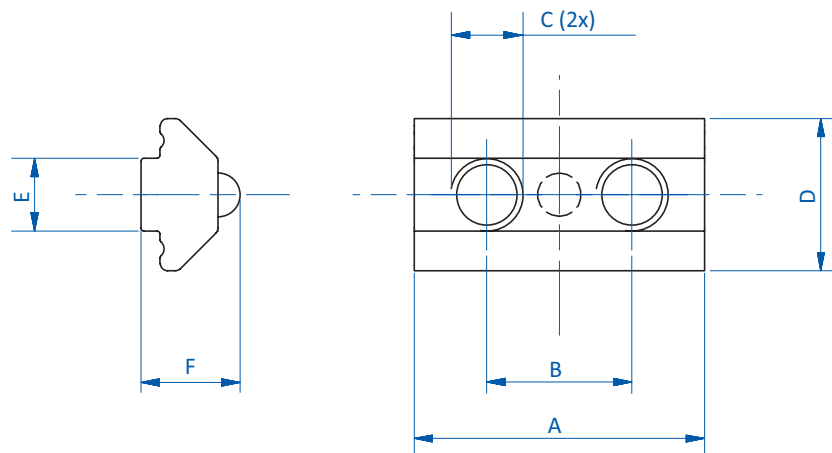
GR01.088A | GR01.089A | GR01.097A | GR01.098A | GR-XL01.100 | GR-XL01.106



Dimensions



GR01.090A



GR01.091A | GR01.092A | GR01.093A | GR01.094A | GR01.095A | GR01.096A |  
GR01.101A | GR01.102A | GR-XL01.101 | GR-XL01.102 | GR-XL01.103 | GR-XL01.104

Item no.	C	A [mm]	B [mm]	D [mm]	E [mm]	F [mm]
GR01.088A	M3	12	--	10.5	4.5	5.3
GR01.089A	M4	12	--	10.5	4.5	5.3
GR01.090A	M4	20	8	10.5	5	6.8
GR01.091A	M5	20	10	10.5	5	6.8
GR01.092A	M5	25	12	10.5	5	6.8
GR01.093A	M5	30	20	10.5	5	6.8
GR01.094A	M5	35	25	10.5	5	6.8
GR01.095A	M5	40	30	10.5	5	6.8
GR01.096A	M5	60	50	10.5	5	6.8
GR01.097A	M5	12	--	10.5	5	6.8
GR01.098A	M5	20	--	10.5	5	6.8
GR01.101A	M5	45	35	10.5	5	6.8
GR01.102A	M5	70	60	10.5	5	6.8
GR-XL01.100	M8	22	--	17	8	12.1
GR-XL01.101	M8	30	15	17	8	12.1
GR-XL01.102	M8	45	30	17	8	12.1
GR-XL01.103	M8	70	55	17	8	12.1
GR-XL01.104	M8	110	95	17	8	12.1
GR-XL01.106	M6	22	--	17	8	12.1



### Threaded slot nuts – universal



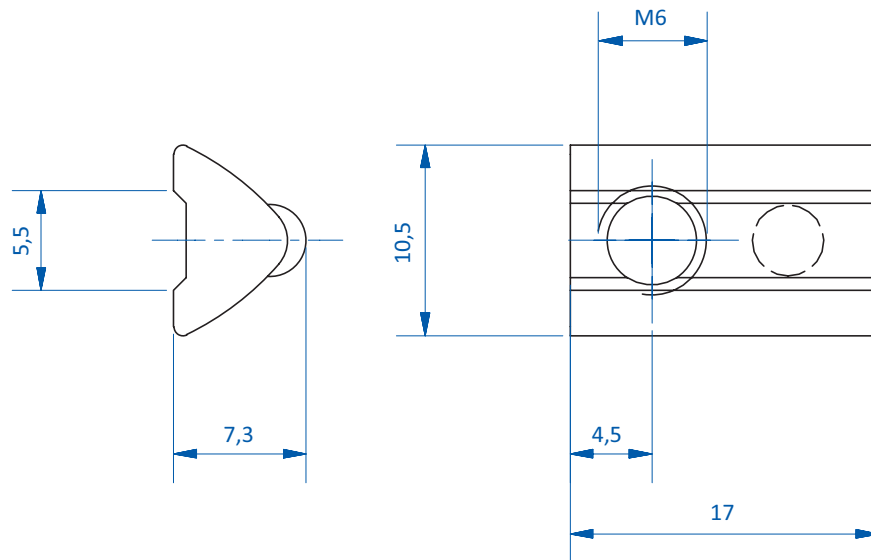
#### Product notes

- > Galvanized steel slot nuts
- > Ball catch prevents slipping of slot nut during installation
- > Compatible with many third-party extrusions

#### Technical data

Item no.	Suitable for extrusion system	With ball catch	Weight [g]
GR01.103	MLine	Yes	4
GR01.104	MLine	--	7
GR01.105	MLine	--	16

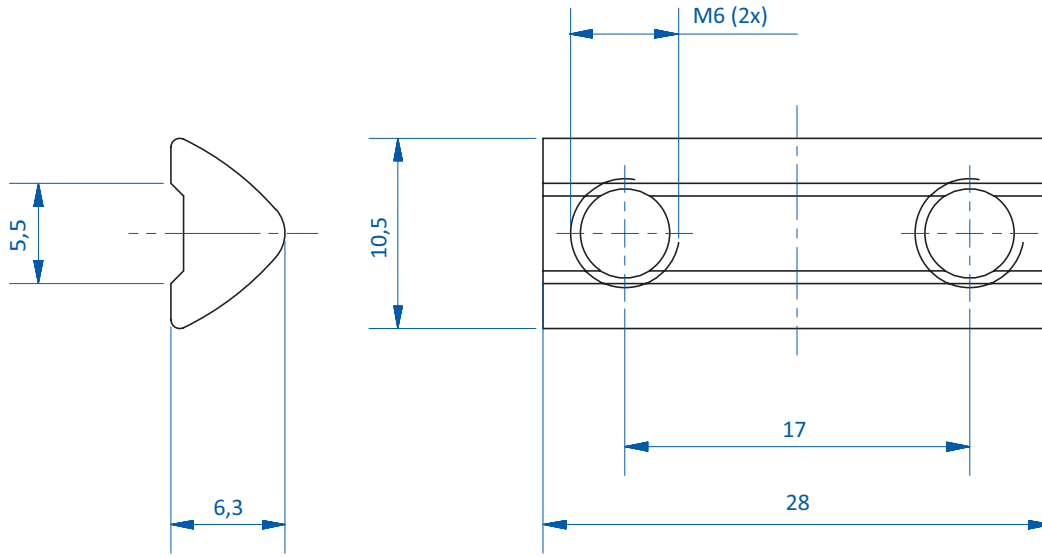
#### Dimensions



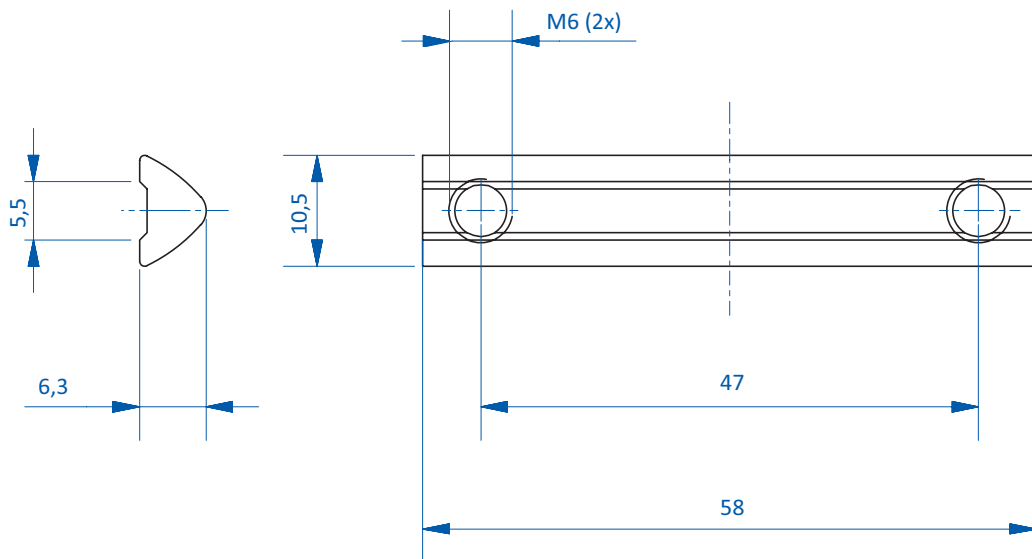
GR01.103



Dimensions



GR01.104



GR01.105



### Threaded slot nuts – swivel-in



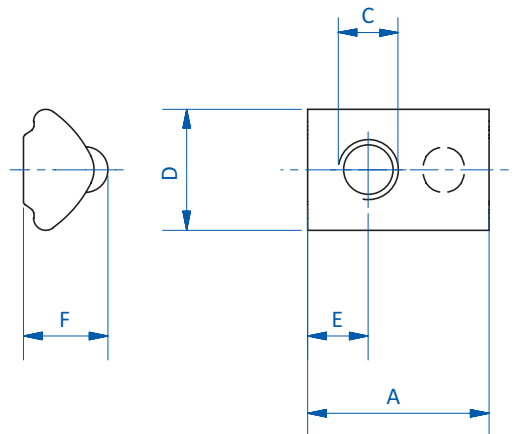
#### Product notes

- > Galvanized steel slot nuts
- > Enables subsequent extension of gripper systems without disassembly
- > Ball catch prevents slipping of slot nut during installation

#### Technical data

Item no.	Suitable for extrusion system	With ball catch	Weight [g]
GR01.069	SLine	Yes	2
GR01.070	SLine	Yes	2
GR01.071	SLine	Yes	2
GR01.080	SLine	--	2
GR01.081	SLine	Yes	3
GR01.082	SLine	Yes	4
GR01.083	SLine	Yes	5
GR01.084	SLine	Yes	6
GR01.085	SLine	Yes	7
GR01.086	SLine	Yes	11
GR-XL01.105	XLine	Yes	8

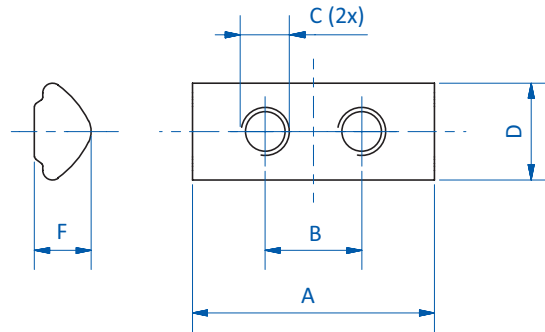
#### Dimensions



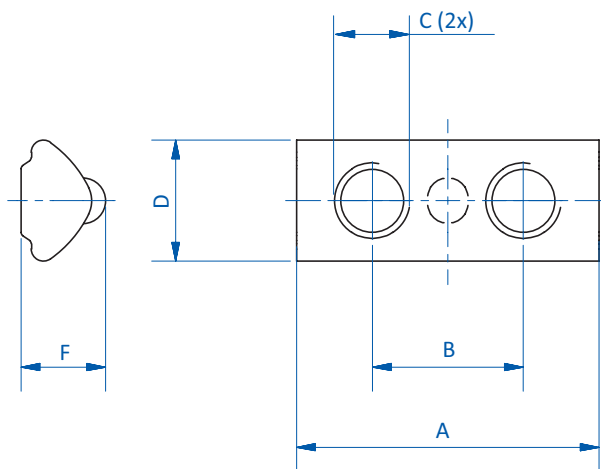
GR01.069 | GR01.070 | GR01.071 | GR-XL01.105



Dimensions



GR01.080



GR01.081 | GR01.082 | GR01.083 | GR01.084 | GR01.085 | GR01.086

Item no.	C	A [mm]	B [mm]	D [mm]	F [mm]	E [mm]
GR01.069	M3	12	--	8	5.6	3
GR01.070	M4	12	--	8	5.6	4
GR01.071	M5	12	--	8	5.6	4
GR01.080	M4	20	8	8	4.7	--
GR01.081	M5	20	10	8	5.6	--
GR01.082	M5	25	12	8	5.6	--
GR01.083	M5	30	20	8	5.6	--
GR01.084	M5	35	25	8	5.6	--
GR01.085	M5	40	30	8	5.6	--
GR01.086	M5	60	50	8	5.6	--
GR-XL01.105	M5	22	--	12.9	9.1	6.3



### Cross joint connectors



#### Product notes

- > Elements for 90° connection of two extrusions
- > Extrusions can be moved in four directions after screws are loosened

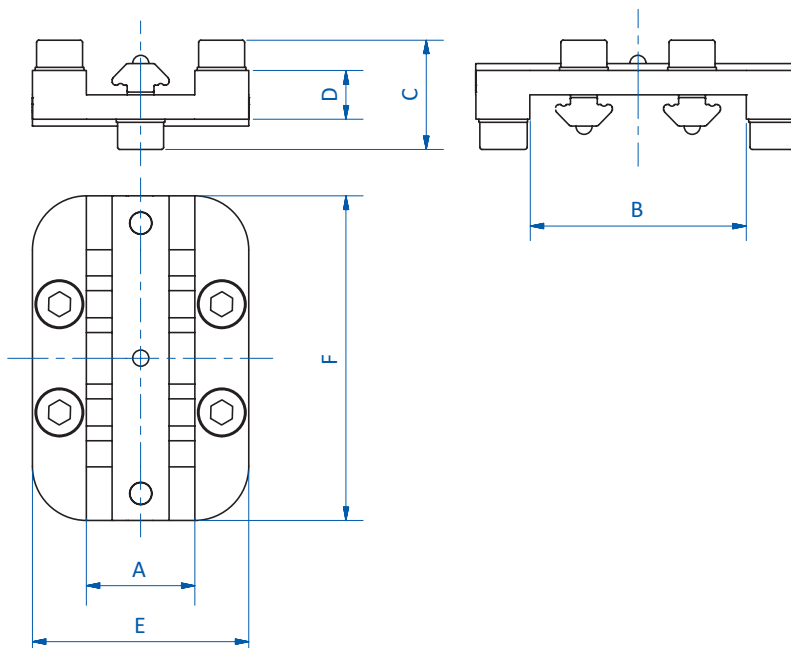
#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.020A	SLine	48
GR01.021	SLine	73
GR01.022	SLine	107
GR01.026	MLine	55
GR01.027	MLine	90
GR01.150	MLine	101
GR-XL01.020	XLine	218
GR-XL01.021	XLine	380
GR-XL01.022	XLine	630

#### Dimensions

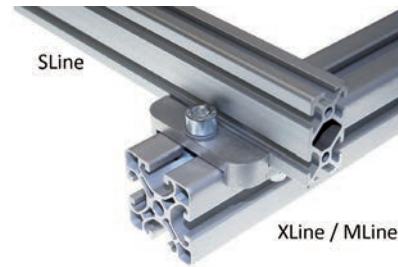
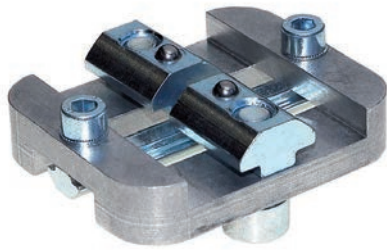
A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
20	20	20	9	40	40	--
20	40	20	9	40	60	--
40	40	20	9	60	60	--
25	25	23	12	45	45	--
25	50	23	12	45	70	--
50	50	23	12	70	70	--
40	40	30	12	70	70	4
40	80	30	12	70	110	4
80	80	30	12	110	110	4

#### Dimensions





Cross joint connectors



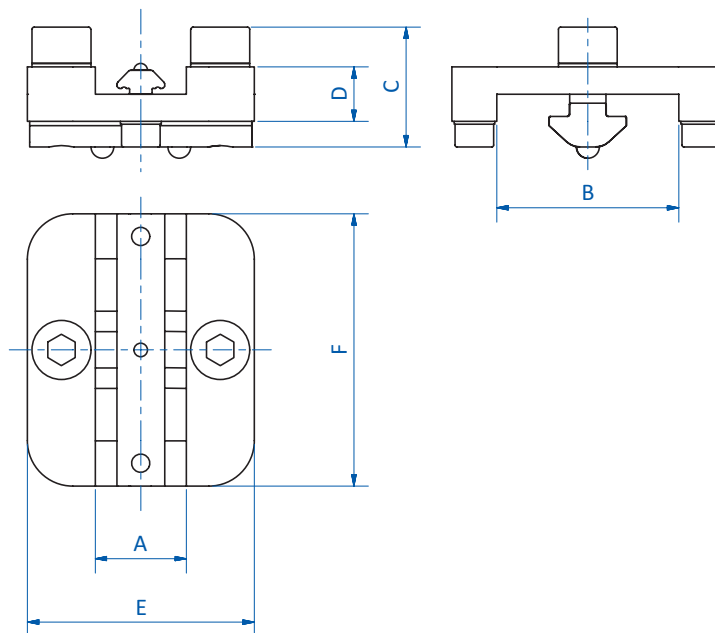
Product notes

> Elements for 90° connection of SLine with MLine or XLine extrusions

Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.023	SLine / MLine	61
GR01.024	SLine / XLine	119
GR01.025	SLine / XLine	173

Dimensions



Item no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
GR01.023	20	25	23	12	40	45
GR01.024	20	40	27	12	50	60
GR01.025	40	40	27	12	70	60





### Profile connectors



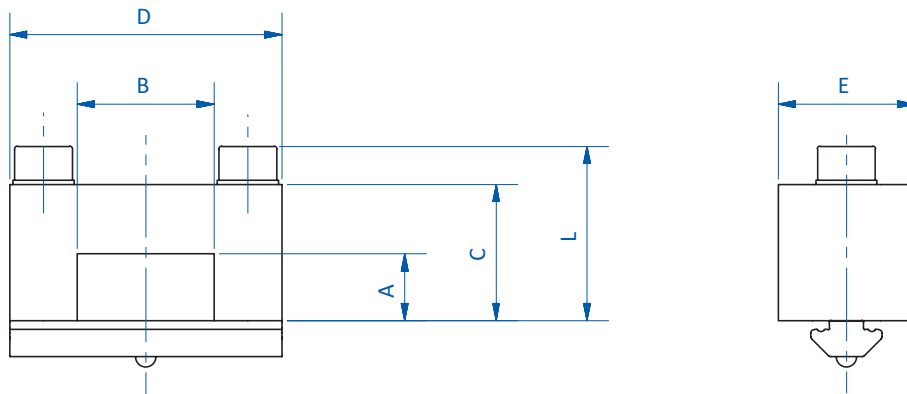
#### Product notes

- > Elements for 90° connection of two SLine extrusions
- > Extrusions can be moved in four directions after screws are loosened

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.030	SLine	43
GR01.031	SLine	58
GR01.032	SLine	72
GR01.040	SLine	50
GR01.041	SLine	55
GR01.042	SLine	83

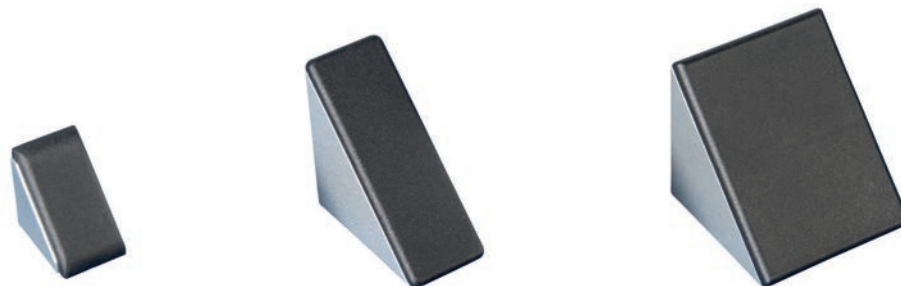
#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	L [mm]
GR01.030	10	20	20	40	20	25.5
GR01.031	10	40	19.5	60	20	25
GR01.032	20	40	29.5	60	20	35
GR01.040	20	10	29.5	30	20	35
GR01.041	20	20	29.5	40	20	35
GR01.042	40	20	49.5	40	20	55



### Angle connectors 90° with cover



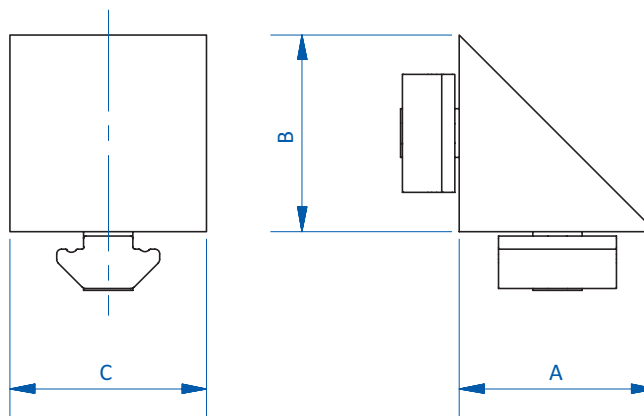
#### Product notes

> Elements for connection of two extrusions

#### Technical data

Item no.	Weight [g]	Suitable for extrusion system
GR01.050	20	SLine / MLine
GR01.051	60	SLine / MLine
GR01.052	150	XLine
GR01.053	270	XLine

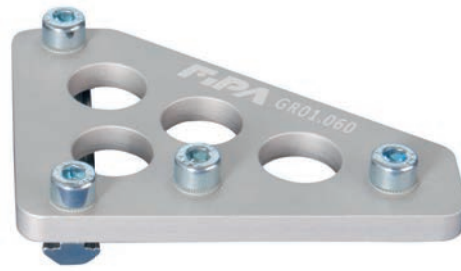
#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]
GR01.050	20	20	20
GR01.051	41.5	41.5	20
GR01.052	40	40	40
GR01.053	77.5	77.5	38.5



### Joining plates 90°



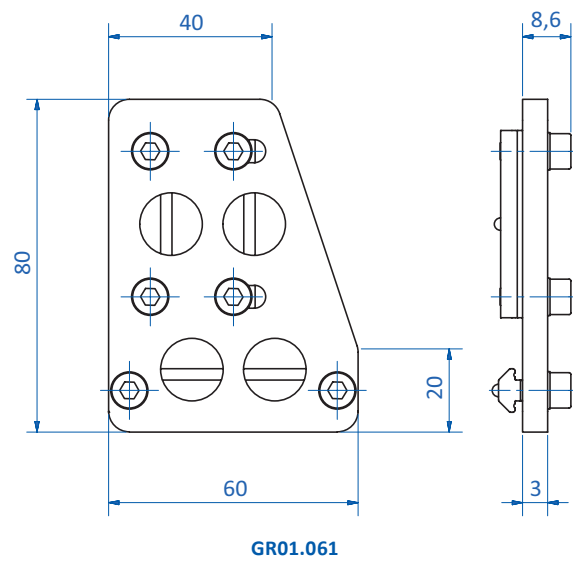
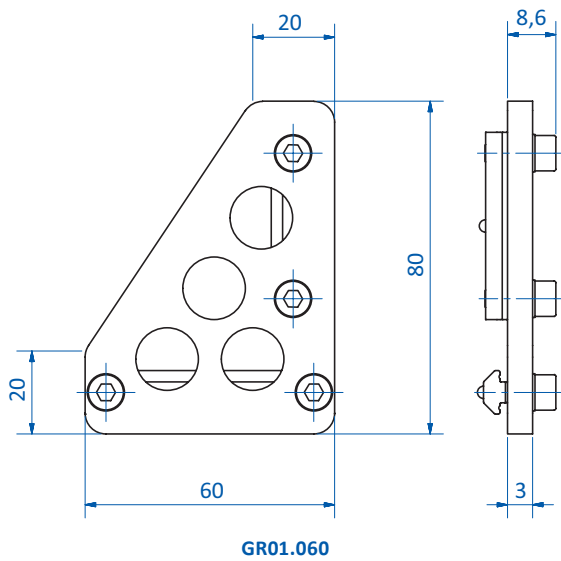
#### Product notes

> Joining plate for 90° connection of two profiles

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.060	SLine / MLine	93
GR01.061	SLine / MLine	108

#### Dimensions





### Corner joint plates 90° to 130°



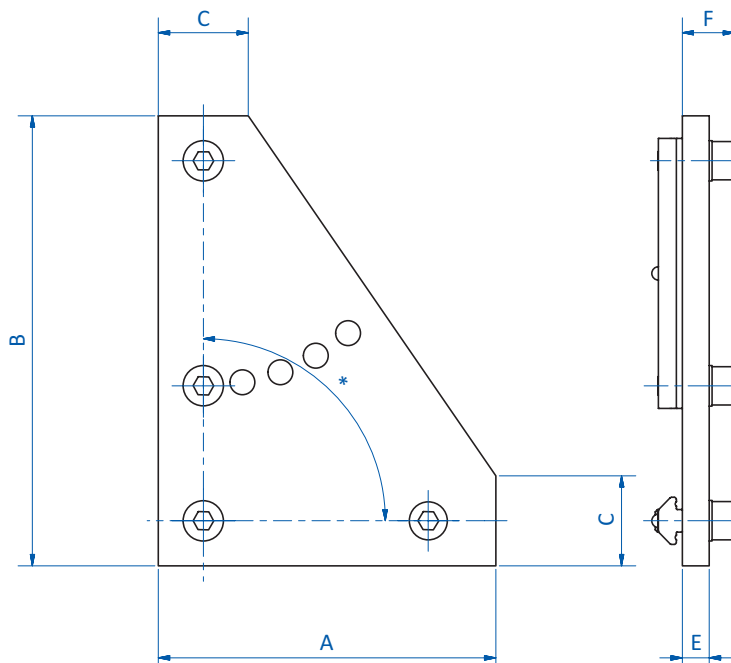
#### Product notes

> Joining plates for connection of two profiles with a defined angle

#### Technical data

Item no.	Suitable for extrusion system	Angle [°]	Weight [g]
GR01.063	SLine	90°, 100°, 110°, 120°, 130°	127
GR01.064	MLine	90°, 100°, 110°, 120°, 130°	131
GR-XL01.063	XLine	90°, 110°, 130°	284

#### Dimensions



\* = Angle

Item no.	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]
GR01.063	75	100	20	3	8.6
GR01.064	75	100	25	3	8.6
GR-XL01.063	80	120	40	3	11.8



### Adjustable profile connectors 0° to 90°



GR01.062

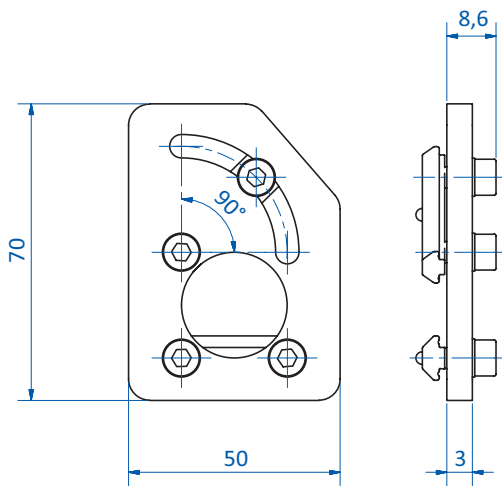
#### Product notes

- > Joining plates for connection of two profiles with adjustable angle

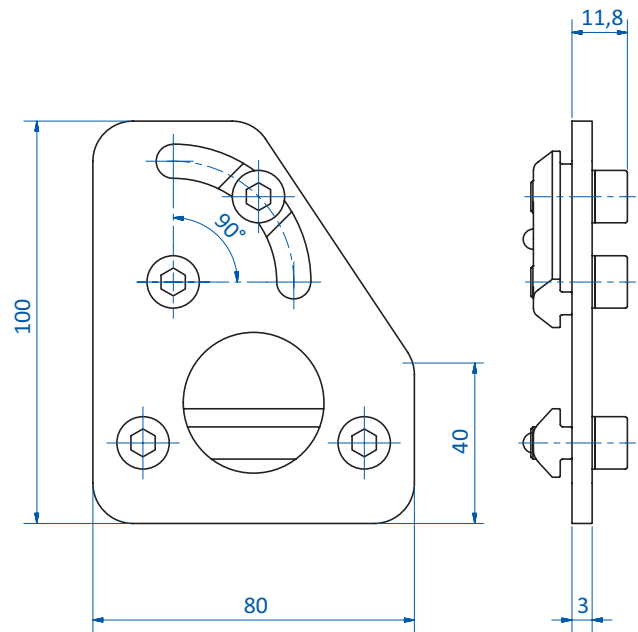
#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.062	SLine / MLine	77
GR-XL01.062	XLine	225

#### Dimensions



GR01.062



GR-XL01.062



### Profile connectors – rotatable



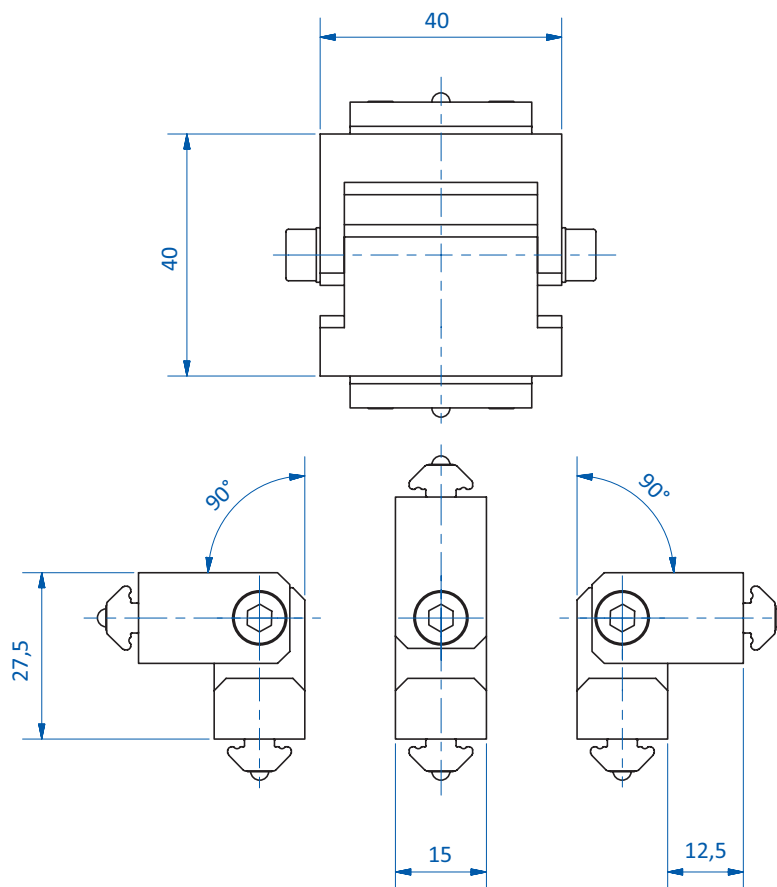
#### Product notes

- > Variable angle mounting of two parallel profiles
- > Rigid clamping through two opposing screws
- > 2x slot nut GR01.093A, with 2x M5 thread for length-ways mounting
- > 4x slot nut GR01.097A, with 2x M5 thread for horizontal mounting

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
<b>GR01.100</b>	SLine / MLine	78

#### Dimensions





### Profile end connectors 90°



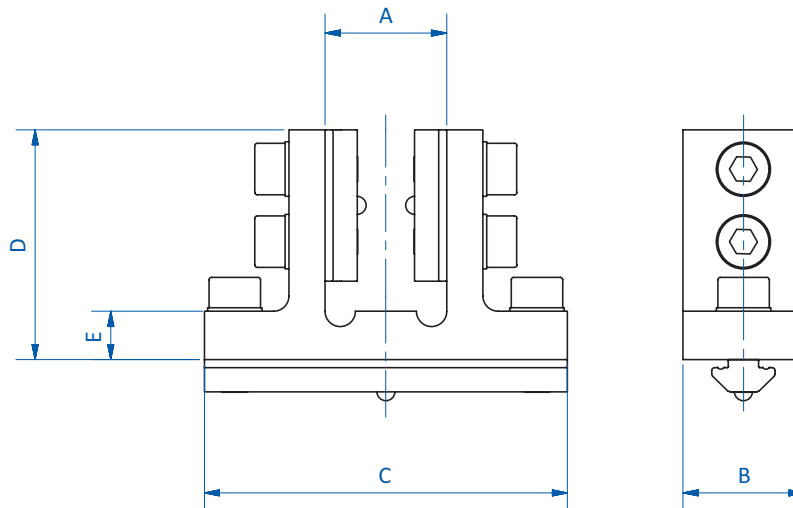
#### Product notes

- > Rigid 90° connection between two extrusions
- > No thread cutting required

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.120	SLine / MLine	92
GR01.121	SLine / MLine	90
GR01.122	SLine / MLine	96
GR01.123	SLine / MLine	100
GR-XL01.025	XLine	406
GR-XL01.026	XLine	396

#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
GR01.120	20	20	60	38	8
GR01.121	40	20	80	38	8
GR01.122	25	25	60	37	7
GR01.123	50	25	90	37	7
GR-XL01.025	40	40	110	47	12
GR-XL01.026	80	40	150	47	12



### Flat connectors – straight



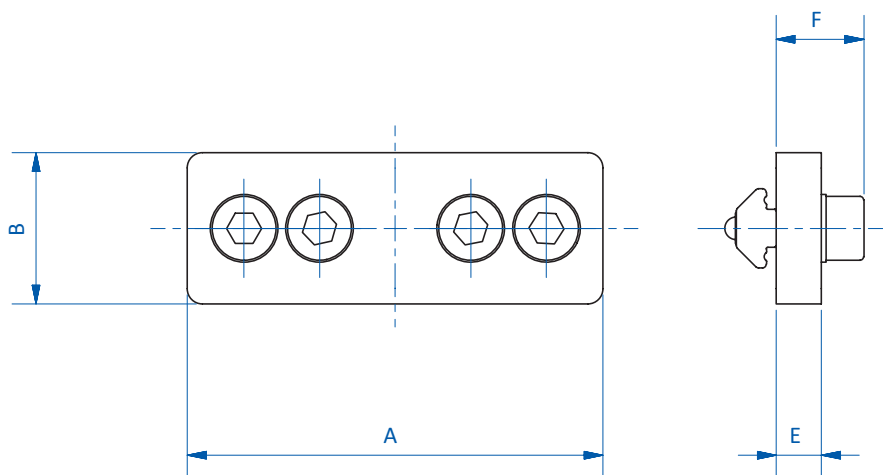
#### Product notes

> For rigid end-to-end connection of two profiles

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.054	SLine / MLine	16
GR01.055	SLine / MLine	50
GR01.056	SLine / MLine	64
GR-XL01.028	XLine	260

#### Dimensions



Item no.	A [mm]	B [mm]	E [mm]	F [mm]
GR01.054	55	20	3	9
GR01.055	75	20	3	9
GR01.056	100	20	3	9
GR-XL01.028	160	40	3	12





### Flat connectors – L-form



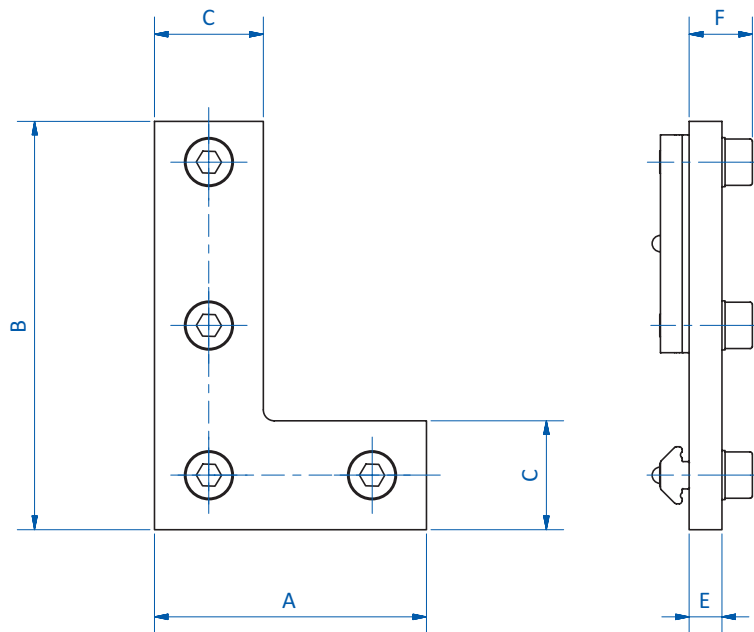
#### Product notes

> For rigid connection of two profiles at 90°

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.046	SLine / MLine	66
GR01.047	SLine / MLine	53
GR01.048	MLine	213
GR-XL01.029	XLine	260

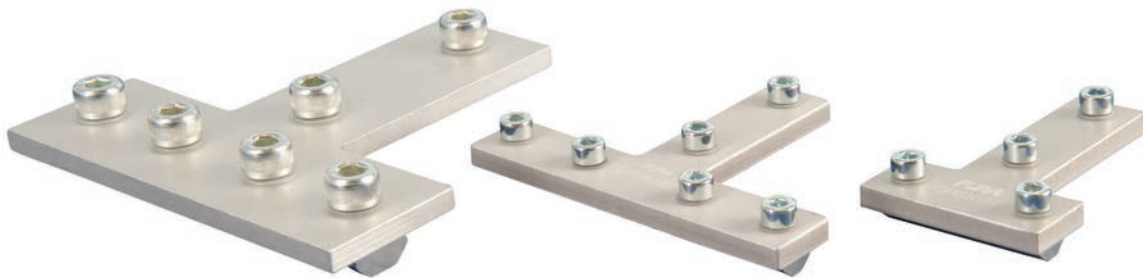
#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]
GR01.046	50	75	20	3	9
GR01.047	50	50	20	3	9
GR01.048	80	120	50	3	9
GR-XL01.029	80	120	40	3	12



### Flat connectors – T-form



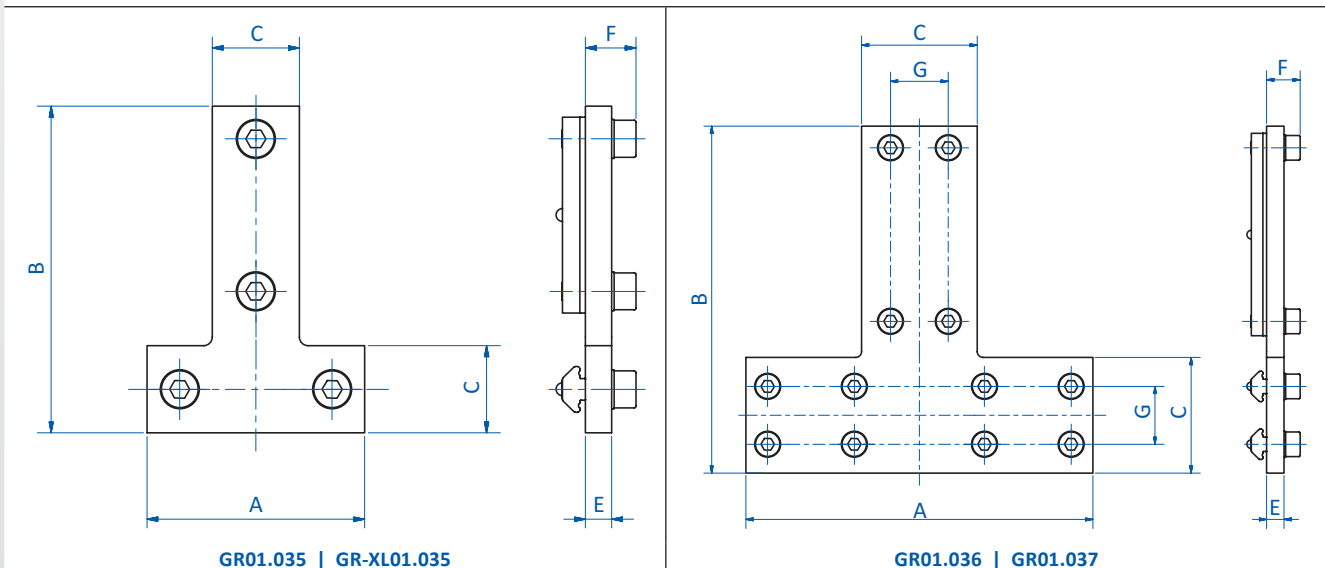
#### Product notes

> For rigid perpendicular connection of two profiles

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.035	SLine / MLine	95
GR01.036	SLine	123
GR01.037	MLine	268
GR-XL01.035	XLine	318

#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]
GR01.035	100	75	20	3	9	--
GR01.036	120	120	40	3	9	20
GR01.037	120	130	50	3	9	25
GR-XL01.035	120	120	40	3	12	--



### Flat connectors 45°



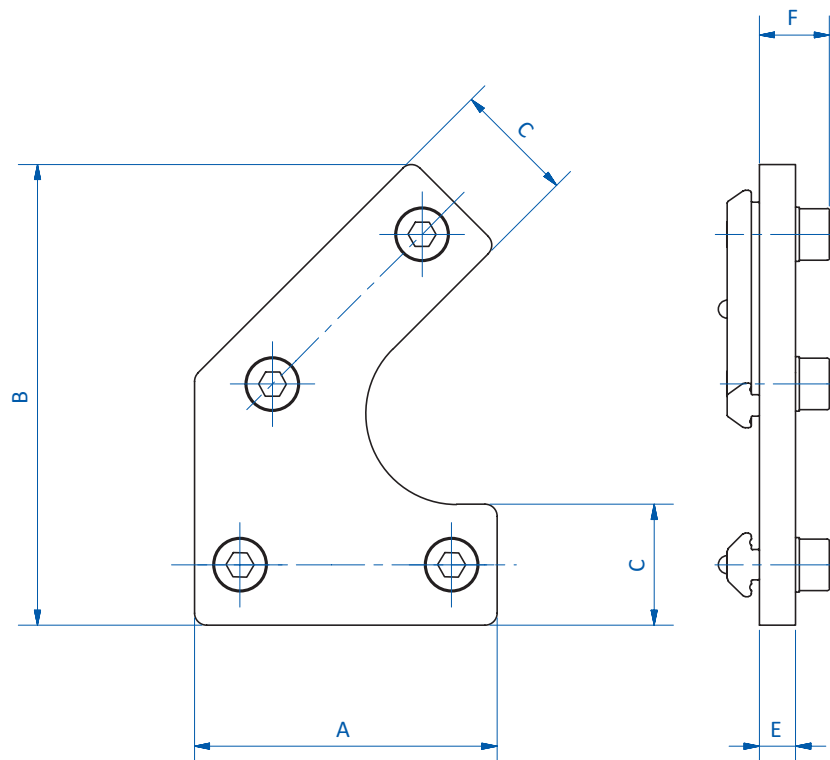
#### Product notes

> For rigid 45° connection of two profiles

#### Technical data

Item no.	Angle [°]	Suitable for extrusion system	Weight [g]
GR01.065	45	SLine	74
GR01.066	45	MLine	79

#### Dimensions



Item no.	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]
GR01.065	50	76	20	3	9
GR01.066	50	76	25	3	9



## Profile – Tube – Adapter



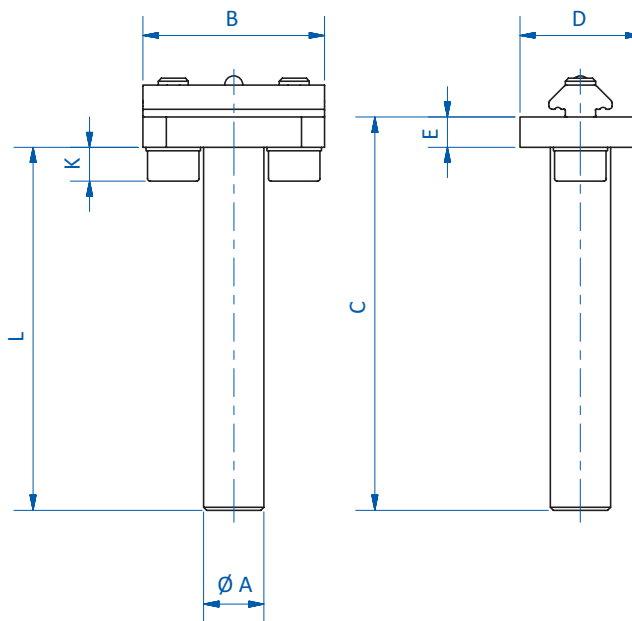
### Product notes

> For the transition from profile systems to a tubular system

### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR01.110	SLine / MLine	28
GR01.111	SLine / MLine	41
GR01.112	SLine / MLine	48

### Dimensions



Item no.	Ø A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	K [mm]	L [mm]
GR01.110	10	30	65	20	5	5.6	60
GR01.111	14	35	85	20	5	5.6	80
GR01.112	20	42	105	20	5	5.6	100



### Short angle clamps



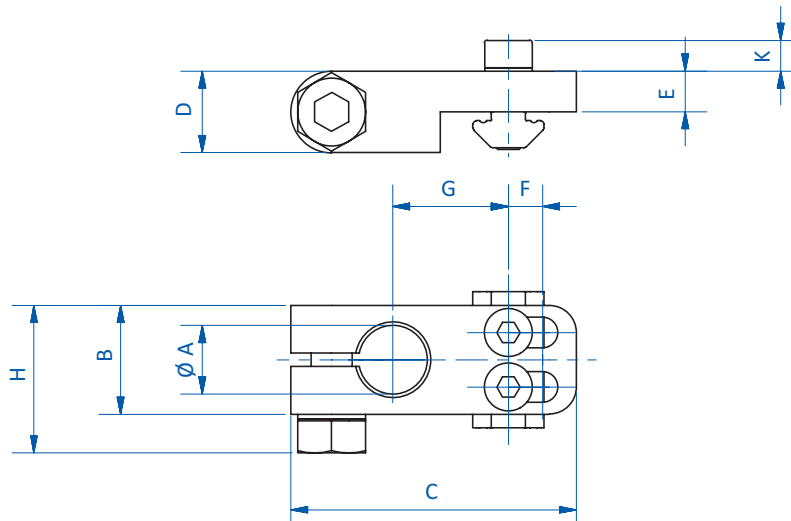
#### Product notes

- > For 90° mounting of gripper components
- > Slotted holes allow for use with profiles from 20 mm to 30 mm in size

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.001A	SLine / MLine	26
GR02.003A	SLine / MLine	52
GR02.004	SLine / MLine	41
GR02.005	SLine / MLine	73
GR-XL02.003	XLine	114
GR-XL02.005	XLine	122

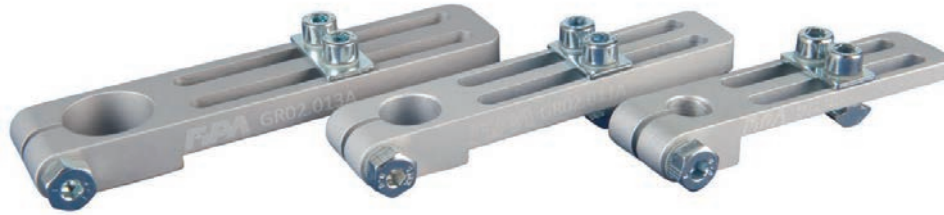
#### Dimensions



Item no.	$\varnothing A$ [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]
GR02.001A	10	16	42	12	6	5	17	21.7	4.5
GR02.003A	20	25	52	12	6.5	5	22	30.7	5.6
GR02.004	14	20	46	12	6.5	5	19	25.7	5.6
GR02.005	30	35	62	20	10	5	27	40.7	5.6
GR-XL02.003	10	30	73	15	6	10	32	35.7	8.8
GR-XL02.005	30	35	82	20	10	10	37	40.7	8.8



Long angle clamps



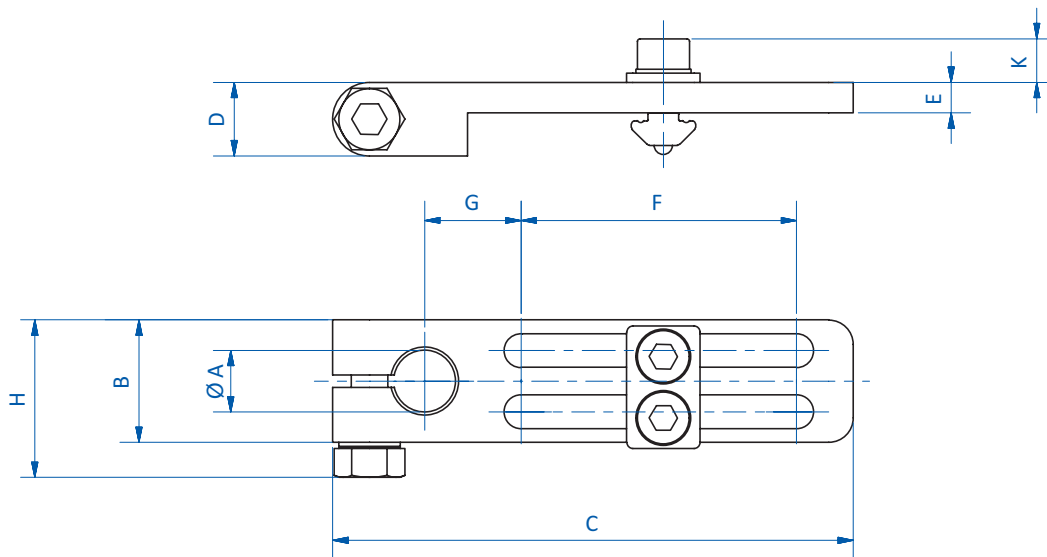
Product notes

- > For 90° mounting of gripper components
- > Allows for adjustment parallel and perpendicular to the profile frame

Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.010A	SLine / MLine	52
GR02.011A	SLine / MLine	58
GR02.013A	SLine / MLine	85
GR02.016	SLine / MLine	150
GR-XL02.013	XLine	140
GR-XL02.016	XLine	213

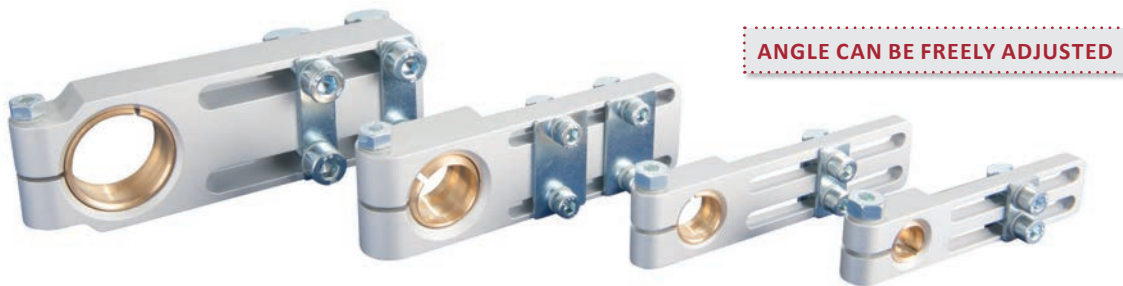
Dimensions



Item no.	∅ A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]
GR02.010A	10	20	85	12	8	45	15.8	25.7	7.1
GR02.011A	14	20	98.5	12	8.5	55	17.3	25.7	7.1
GR02.013A	20	25	114	12	8.5	64.5	20.3	30.7	7.1
GR02.016	30	35	122	20	10	65	27	40.7	7.1
GR-XL02.013	20	30	150	15	7.5	100	21	35.7	10.3
GR-XL02.016	30	36	162	20	20	100	25.5	40.7	10.3



### Long angle clamps – with ball joint



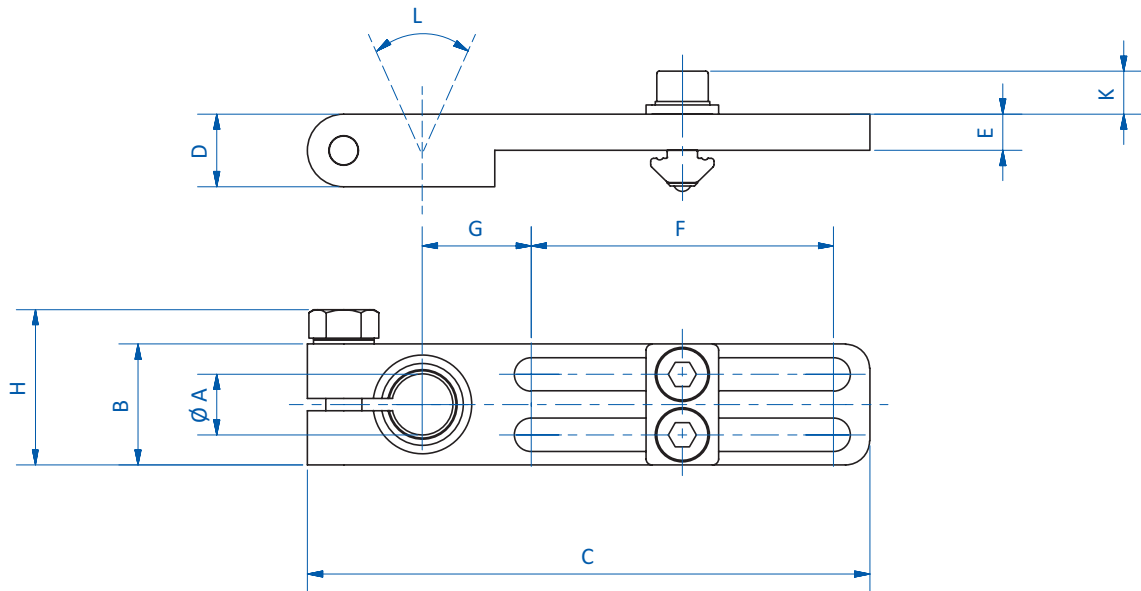
#### Product notes

- > Ball joint enables variable angular adjustment of gripper components
- > Allows for adjustment parallel and perpendicular to the profile frame

#### Technical data

Item no.	Suitable for extrusion system	Angular adjustment [°]	Weight [g]
GR02.035	SLine / MLine	38	48
GR02.036	SLine / MLine	33	60
GR02.037	SLine / MLine	31	145
GR02.038	SLine / MLine	28	238
GR-XL02.038	XLine	28	260

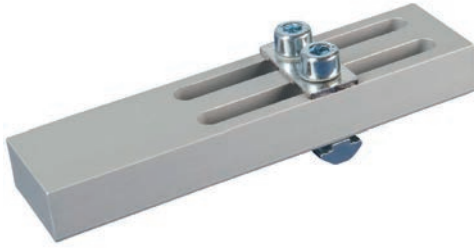
#### Dimensions



Item no.	Ø A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]	L [°]
GR02.035	10	20	93	12	6	50	18	25.7	7.1	38
GR02.036	14	25	107	12	6	60	20	30.7	7.1	33
GR02.037	20	35	115	20	10	60	24	40.7	7.1	31
GR02.038	30	45	136	20	17	70	30	45.7	7.1	28
GR-XL02.038	30	45	136	20	20	70	30	45.7	10.3	28



## Angle clamps – customizable



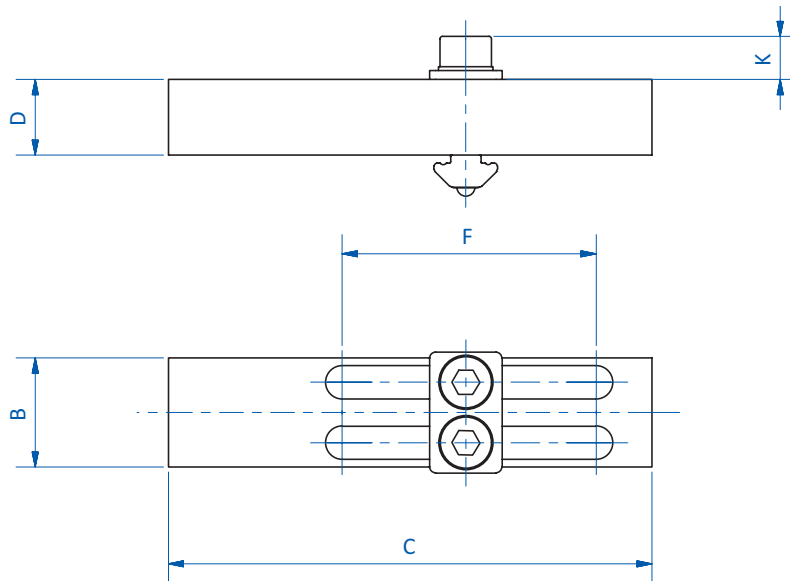
### Product notes

- > Mounting blank for custom solutions
- > Allows for adjustment parallel and perpendicular to the profile frame

### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.014	SLine / MLine	47
GR02.015	SLine / MLine	84

### Dimensions

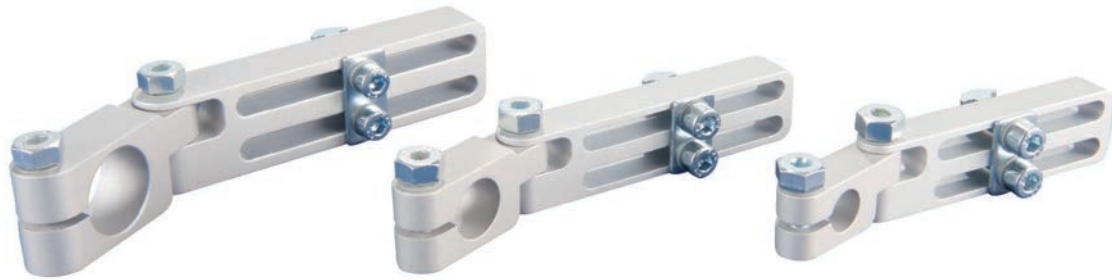


Item no.	B [mm]	C [mm]	D [mm]	F [mm]	K [mm]
GR02.014	18	80	12.5	42	7.1
GR02.015	25	100	12.5	52	7.1





### Long angle clamps – with swivel head



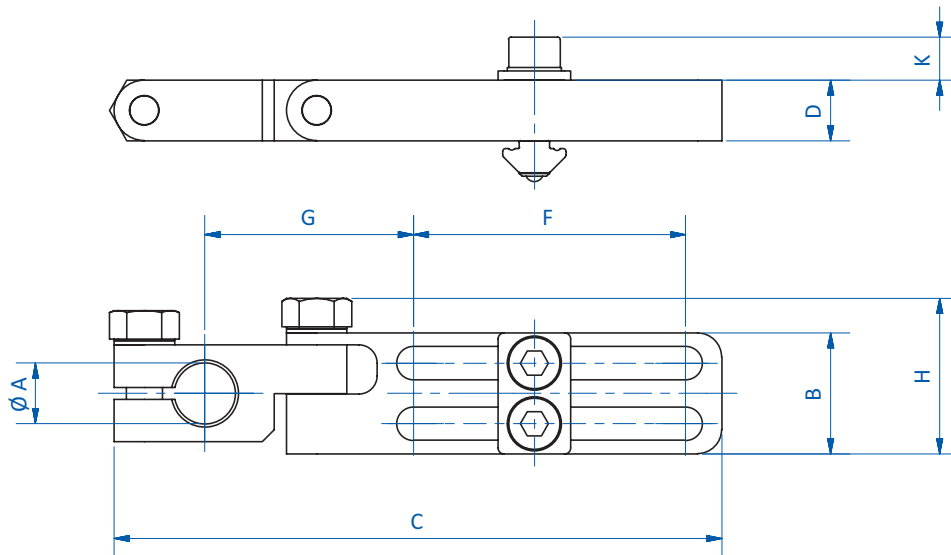
#### Product notes

- > Swivel head allows for angle variable installation of gripper components
- > Allows for adjustment parallel and perpendicular to the profile frame

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.026	SLine / MLine	56
GR02.027	SLine / MLine	62
GR02.028	SLine / MLine	90
GR02.029	SLine / MLine	152
GR-XL02.029	XLine	223

#### Dimensions



Item no.	Ø A [mm]	B [mm]	C [mm]	D [mm]	F [mm]	G [mm]	H [mm]	K [mm]
GR02.026	10	20	100.5	10	45	34.5	25.7	7.1
GR02.027	14	20	116.5	12	55	37.5	25.7	7.1
GR02.028	20	25	136	15	65	44	30.7	7.1
GR02.029	30	35	183.8	22.5	85	58.8	40.7	7.1
GR-XL02.029	30	45	185	20	85	60	45.7	10.3



Cross clamps



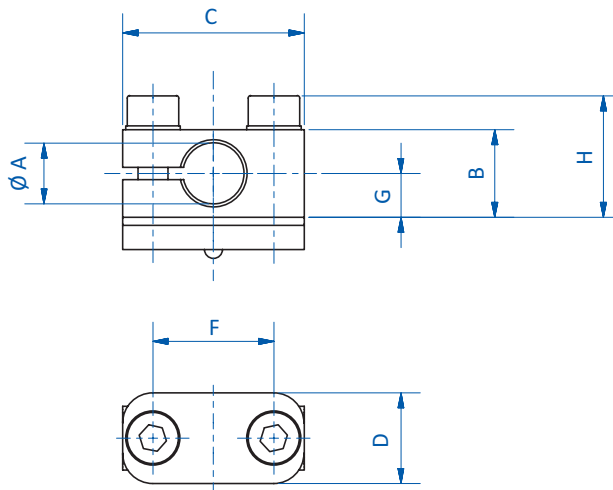
Product notes

- > Elements for 90° clamping of gripper components
- > Clamp allows transition from profile systems to a tubular system

Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.020	SLine / MLine	27
GR02.022	SLine / MLine	43
GR02.023	SLine / MLine	35
GR02.024	SLine / MLine	97
GR-XL02.022	XLine	103
GR-XL02.024	XLine	172

Dimensions



Item no.	$\varnothing A$ [mm]	B [mm]	C [mm]	D [mm]	F [mm]	G [mm]	H [mm]
GR02.020	10	14.5	30	15	20	7.3	20.1
GR02.022	20	24.5	40	15	30	12.3	30.1
GR02.023	14	19.5	35	15	25	9.8	25.1
GR02.024	30	34	60	20	50	17	39.6
GR-XL02.022	20	24.5	45	20	30	12.3	33.3
GR-XL02.024	30	34	68	20	55	17	42.8



### Heavy-duty cross clamps



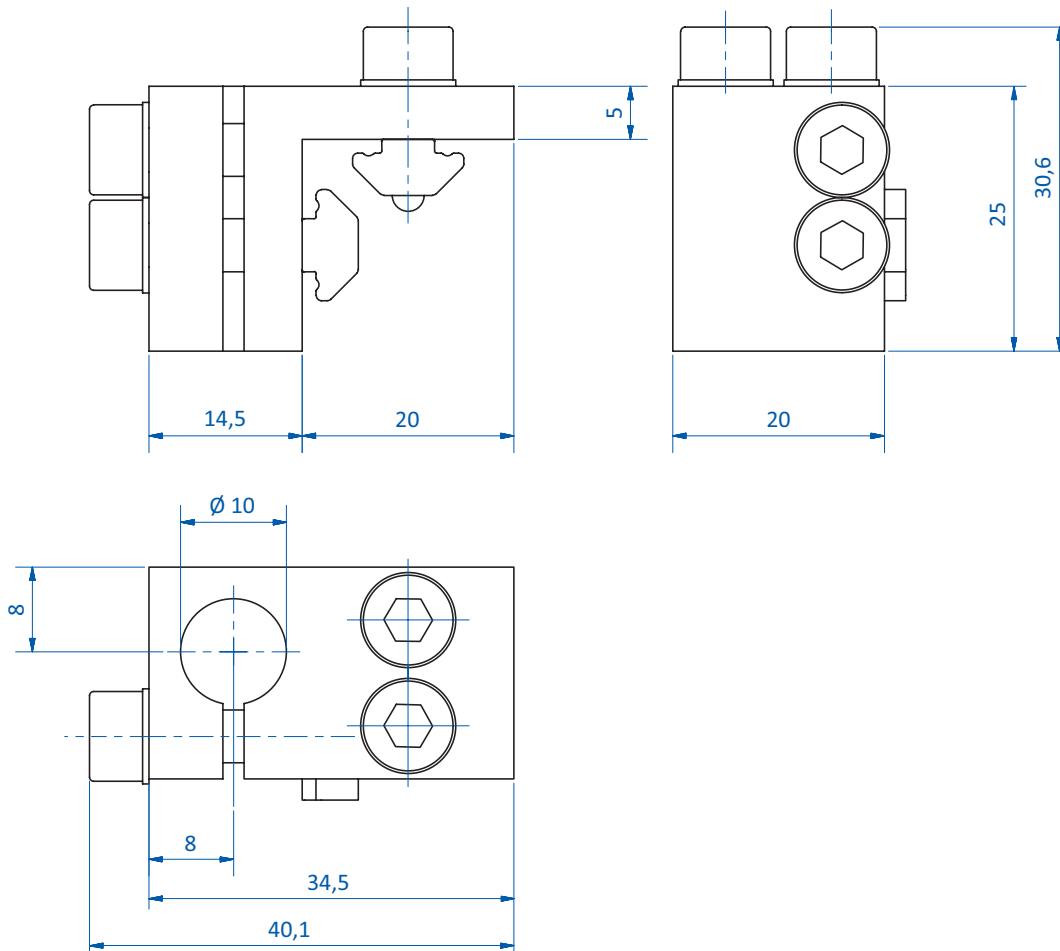
#### Product notes

- > Heavy-duty clamps for mounting gripper components
- > Channel nuts locate on perpendicular faces of the profile to minimize deflection of critical components

#### Technical data

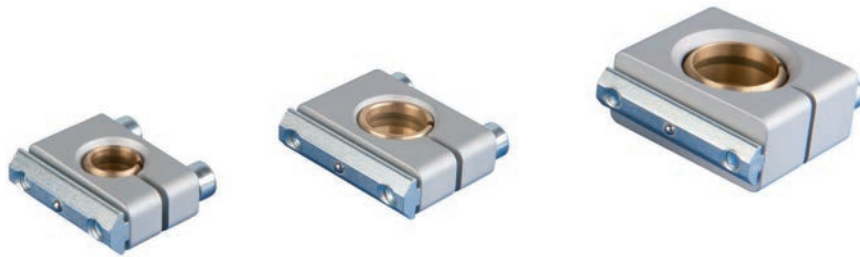
Item no.	Suitable for extrusion system	Weight [g]
GR02.006	SLine	37

#### Dimensions





### Cross clamps – with ball joint



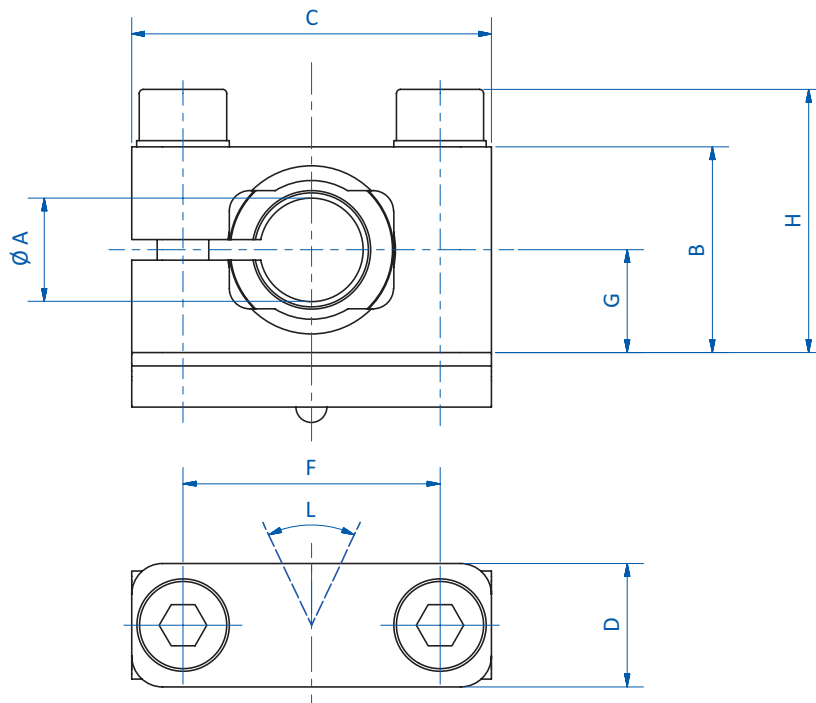
#### Product notes

- > Elements for clamping of gripper components
- > Ball joint enables variable angular adjustment of gripper components up to max. 19°

#### Technical data

Item no.	Suitable for extrusion system	Angular adjustment [°]	Weight [g]
GR02.020-KG	SLine / MLine	19	38
GR02.022-KG	SLine / MLine	16	98
GR02.023-KG	SLine / MLine	17	49

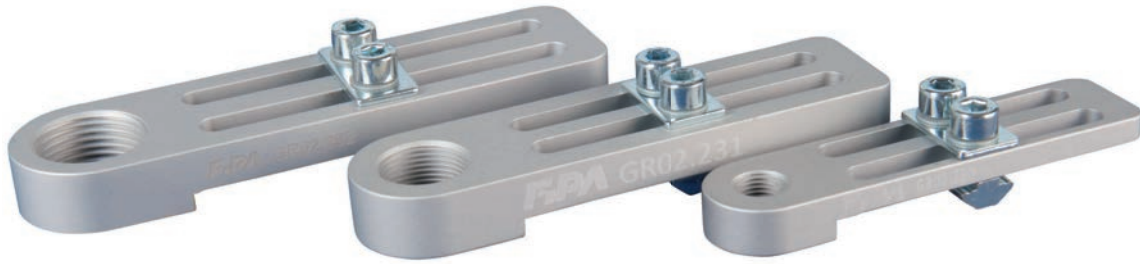
#### Dimensions



Item no.	$\varnothing A$ [mm]	B [mm]	C [mm]	D [mm]	F [mm]	G [mm]	H [mm]	L [°]
GR02.020-KG	10	20	35	12	25	10	25.6	19
GR02.022-KG	20	35	45	20	35	17.5	40.6	16
GR02.023-KG	14	25	40	12	30	12.5	30.6	17



### Threaded mounting brackets



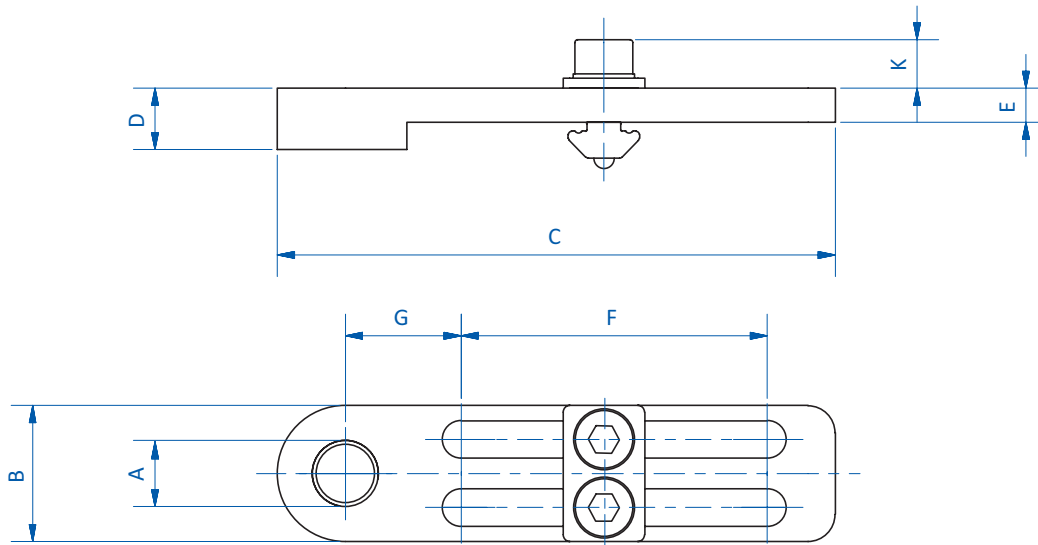
#### Product notes

> Mounting of G1/8, M16 x 1 and M20 x 1.5 suspensions and spring loaded gripper arms to profiles

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.230	SLine / MLine	29
GR02.231	SLine / MLine	55
GR02.232	SLine / MLine	63

#### Dimensions



Item no.	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	K [mm]
GR02.230	G1/8	20	82	9	5	45	17	7.1
GR02.231	M16x1	26	99	12	8.5	55	21	7.1
GR02.232	M20x1.5	28	110	12	8.5	65	21	7.1



Parallel clamps



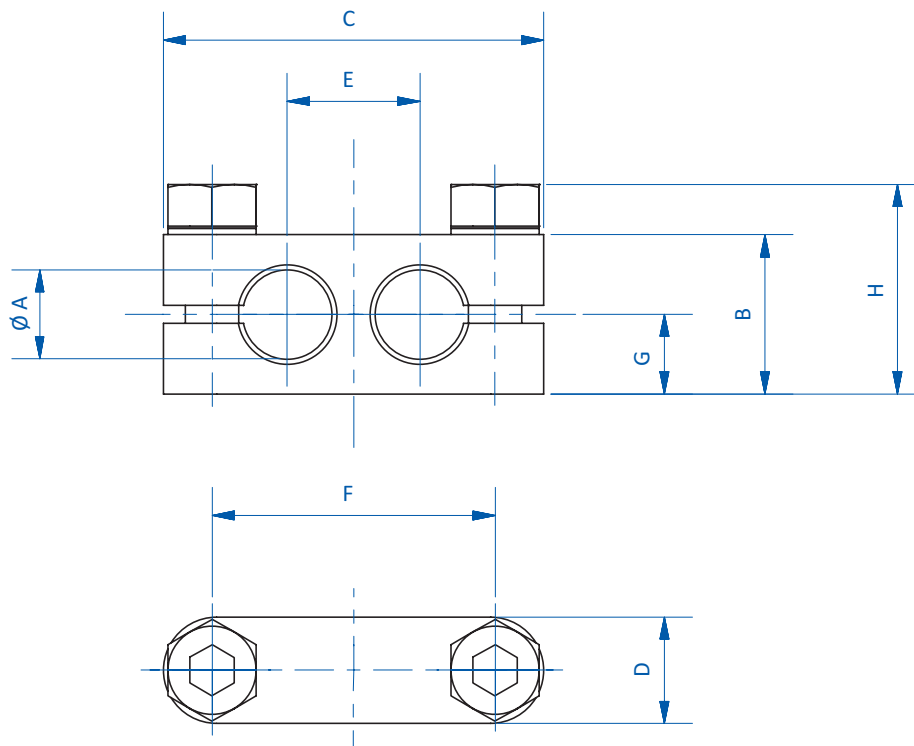
Product notes

> Parallel connection of two clamping shafts

Technical data

Item no.	Weight [g]
GR02.220	30
GR02.221	35
GR02.222	60

Dimensions



Item no.	Ø A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]
GR02.220	10	18	43	12	15	32	9	23.7
GR02.221	14	20	52	12	20	41	10	25.7
GR02.222	20	25	64	14	26	53	12.5	30.7



### Cross clamps 90°



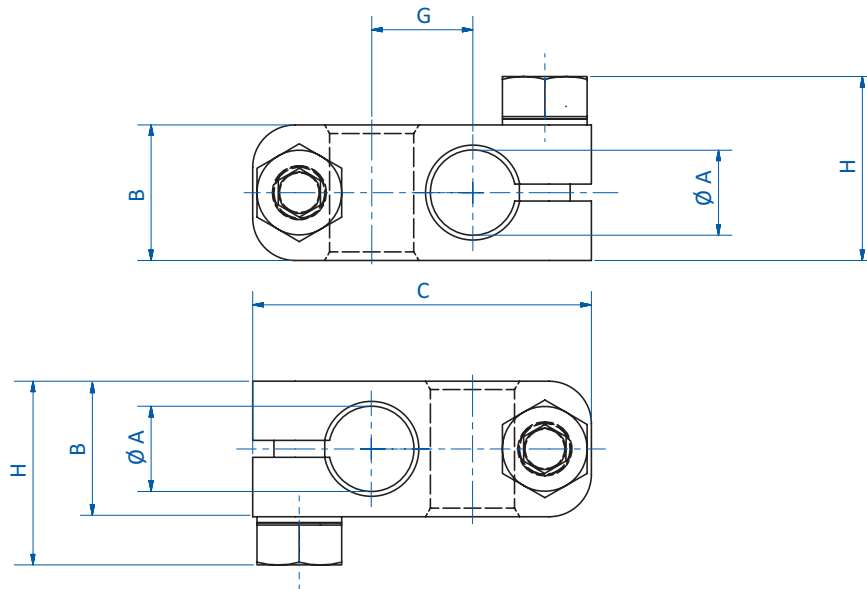
#### Product notes

- > Perpendicular clamping of tubular components
- > Versatile 90° connection of two clamping shafts of the same size

#### Technical data

Item no.	Weight [g]
GR02.210	28
GR02.211	33
GR02.212	58

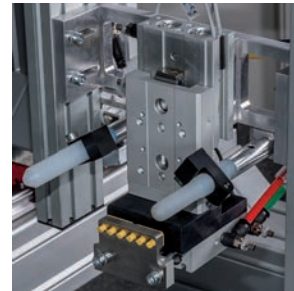
#### Dimensions



Item no.	Ø A [mm]	B [mm]	C [mm]	G [mm]	H [mm]
GR02.210	10	16	40	12	21.7
GR02.211	14	18	48	16	23.7
GR02.212	20	24 - 0	60	22	29.7



Locator pins



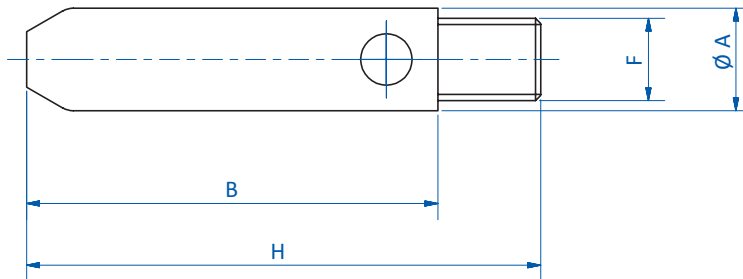
Product notes

- > Alignment of EOAT and locating of parts
- > Locator pins made of POM
- > Compatible with extension tubes

Technical data

Item no.	Weight [g]	Suitable extension tube
GR06.001	4	GR06.020 (p.90)
GR06.002A	22	GR06.021A (p.90)
GR06.003	63	GR06.022 (p.90)

Dimensions



Item no.	F	Ø A [mm]	B [mm]	H [mm]
GR06.001	M8x1	10	40	50
GR06.002A	M12x1	14	85	100
GR06.003	M17x1	20	135	150





### Extension tubes



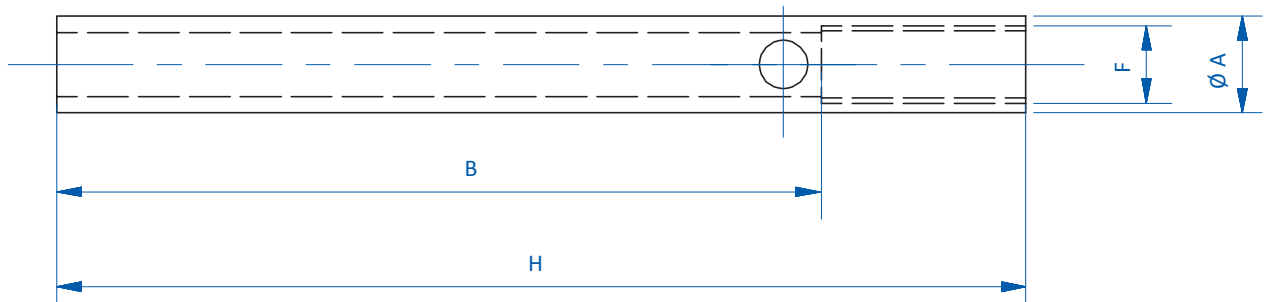
### Product notes

> Compatible with locator pins, finger grippers and sprue grippers

### Technical data

Item no.	Clamping $\phi$ [mm]	Weight [g]	Suitable locator pins
GR06.020	10	10	GR06.001 (p.89)
GR06.021A	14	22	GR06.002A (p.89)
GR06.022	20	28	GR06.003 (p.89)

### Dimensions



Item no.	F	$\phi A$ [mm]	B [mm]	H [mm]
GR06.020	M8x1	10	87	100
GR06.021A	M12x1	14	82	100
GR06.022	M17x1	20	82	100



### Angle connectors for vacuum cups



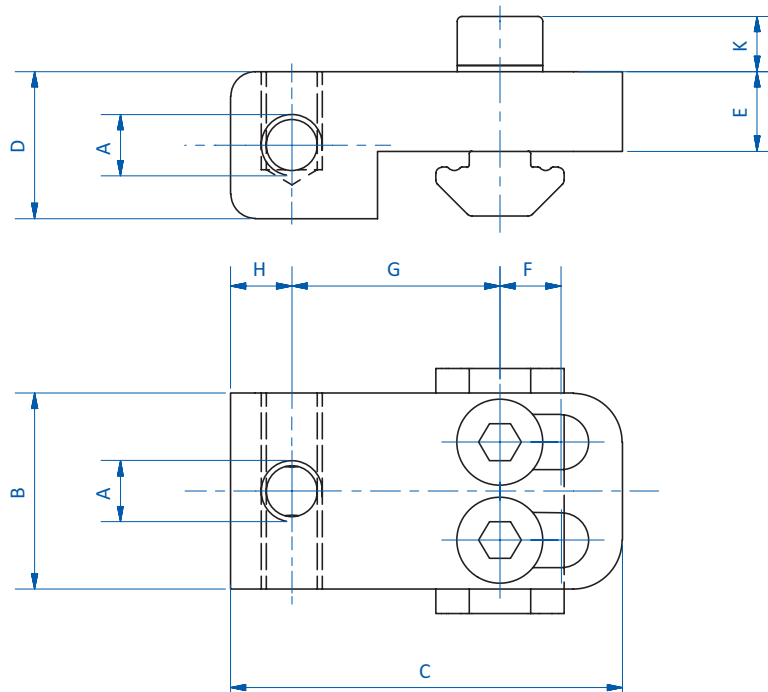
#### Product notes

- > Two vacuum ports
- > Slotted holes allow for use with profiles from 20 mm to 30 mm and 40 mm to 60 mm in size

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.030A	SLine / MLine	18
GR02.031A	SLine / MLine	37
GR-XL02.033	XLine	94

#### Dimensions



Item no.	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]
GR02.030A	M5	16	32	12	6.5	5	17	5	4.5
GR02.031A	G1/8	25	38	15	6.5	5	20	8	5.6
GR-XL02.033	G1/4	30	60	20	10	10	29	11	8.8



### Long angle connectors for vacuum cups



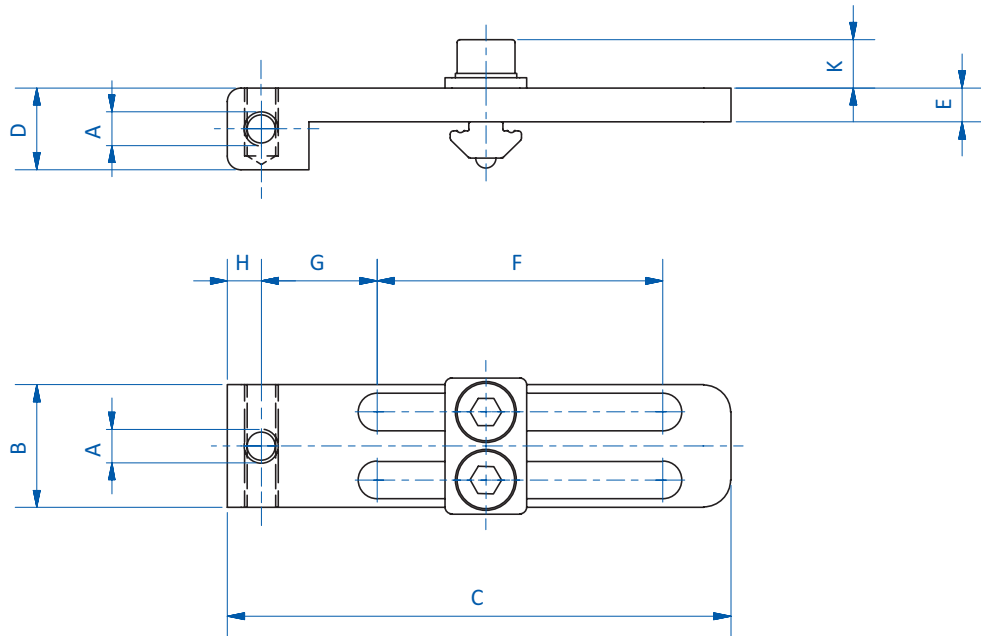
#### Product notes

- > Two vacuum ports
- > Slotted holes allow for adjustment perpendicular to the profile frame

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
<b>GR02.040</b>	SLine / MLine	44
<b>GR02.041</b>	SLine / MLine	58
<b>GR02.043</b>	SLine / MLine	86

#### Dimensions



Item no.	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]
<b>GR02.040</b>	M5	18	74	12	5	42	17	5	7.1
<b>GR02.041</b>	G1/8	25	90	15	8.5	52	20.8	8	7.1
<b>GR02.043</b>	G1/4	30	94	18	8.5	52	22	10	7.1



### Vacuum cup connectors – perpendicular



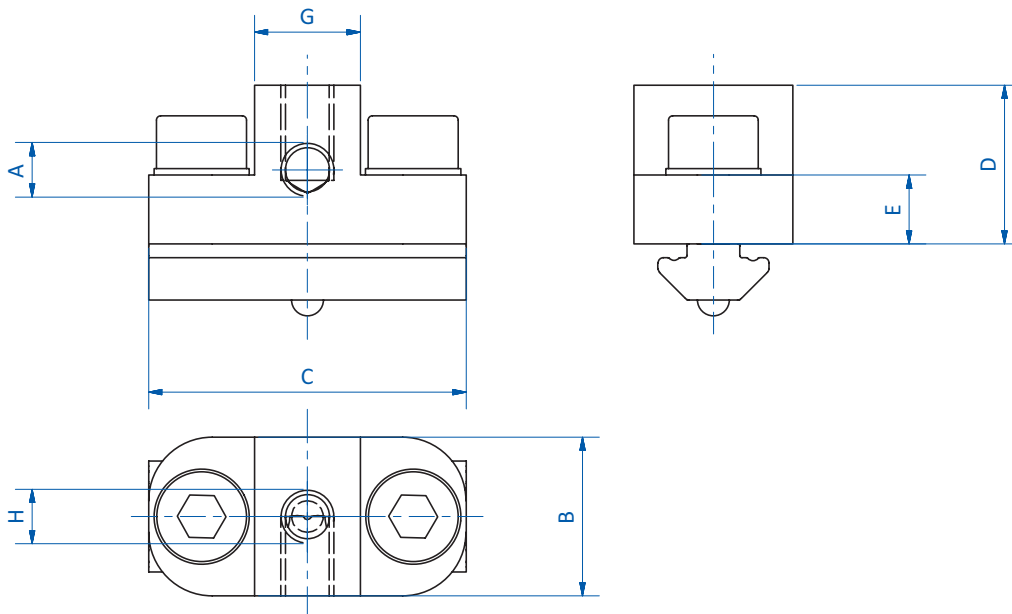
#### Product notes

- > Compact mounting of vacuum cups to profiles

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR02.050	SLine / MLine	24
GR02.051	SLine / MLine	36
GR02.053	SLine / MLine	49

#### Dimensions



Item no.	A	H	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]
GR02.050	M5	M5	15	30	15	6.5	10
GR02.051	G1/8	G1/8	15	40	20	6.5	20
GR02.053	G1/4	G1/4	20	40	25	6.5	20



### Vacuum cup connectors – rotatable 360°



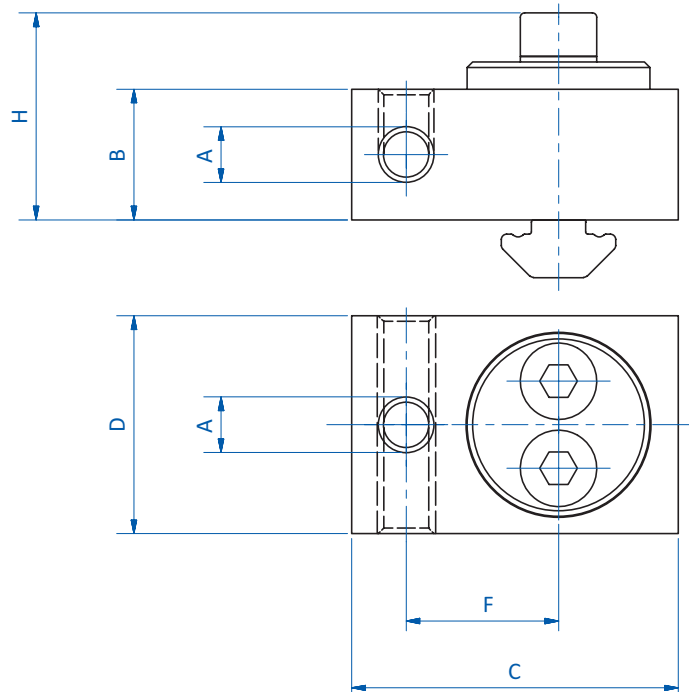
#### Product notes

- > 360° adjustability
- > Two vacuum ports

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
<b>GR02.060</b>	SLine / MLine	24
<b>GR02.061</b>	SLine / MLine	48
<b>GR02.063</b>	SLine / MLine	69

#### Dimensions



Item no.	A	B [mm]	C [mm]	D [mm]	F [mm]	H [mm]
<b>GR02.060</b>	M5	12	30	20	14	19
<b>GR02.061</b>	G1/8	15	43	25	20	22.1
<b>GR02.063</b>	G1/4	20	45	30	21	25.6



### Vacuum cup connectors – rotatable



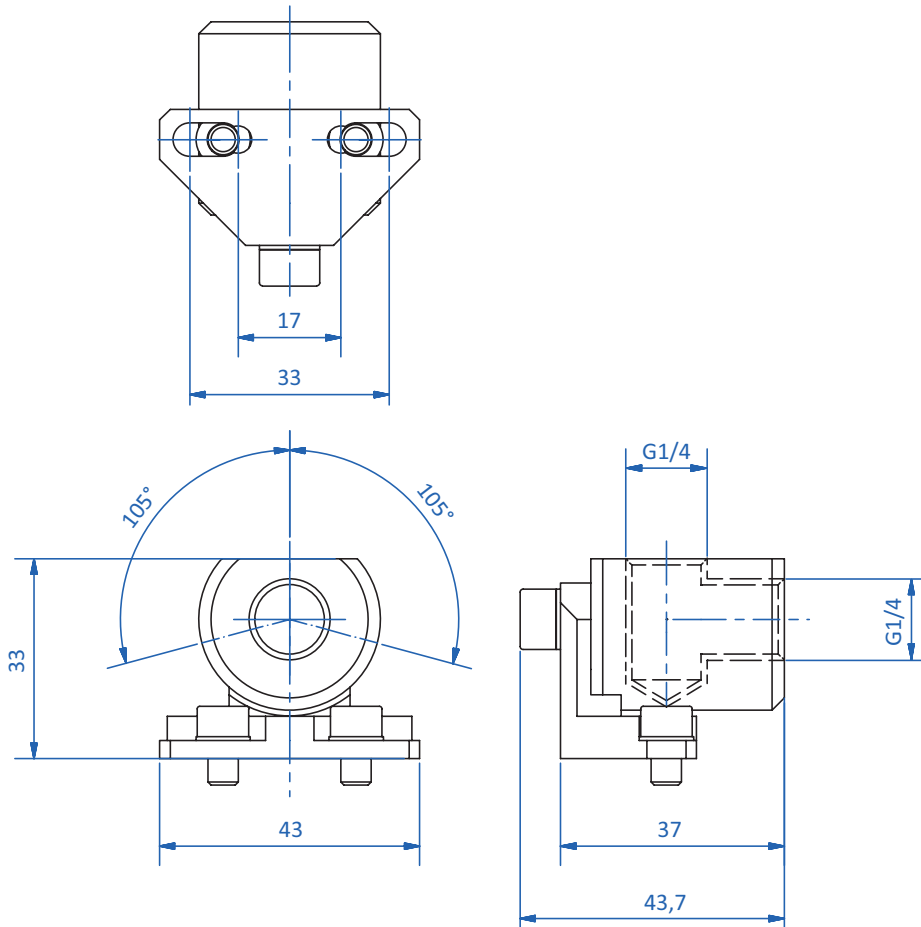
#### Product notes

- > For mounting vacuum cups to profiles or compact cylinders
- > Suitable for all standard compact cylinders (anti-twist) in accordance with ISO 21287 standard

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]
GR07.020	SLine / MLine	79

#### Dimensions





### Air and vacuum manifolds – stackable



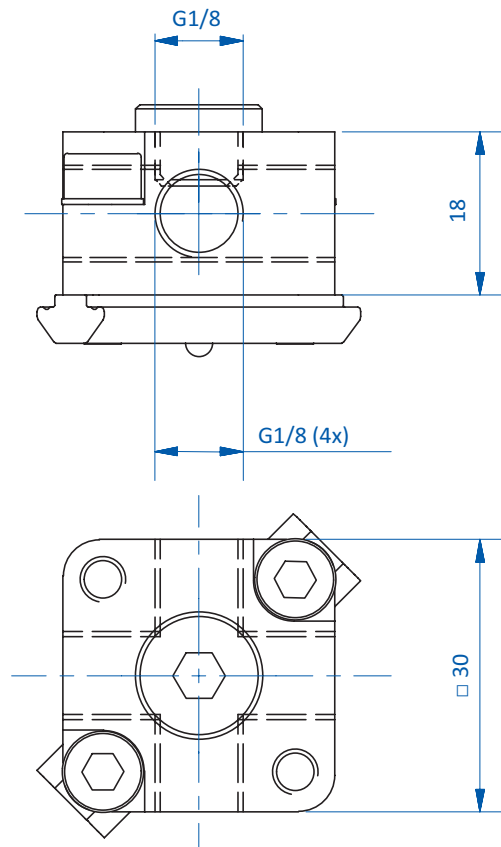
#### Product notes

- > Space-saving distribution of air or vacuum
- > One inlet, four outlets per manifold
- > Can be expanded by stacking additional manifolds
- > When stacking the air manifold, a bore hole with max.  $\varnothing$  7 mm is to be provided in the center of the underside
- > Slot nut, O-ring for sealing and sealing plug included in scope of delivery

#### Technical data

Item no.	Suitable for extrusion system	Weight [g]	Suitable sealing plugs
GR05.001A	SLine / MLine	50	77.009 (p.455)

#### Dimensions





### Air and vacuum manifolds



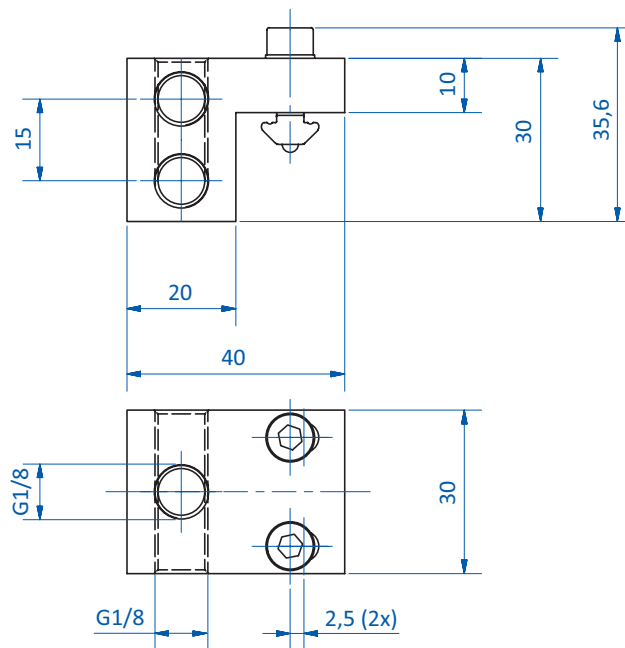
#### Product notes

> Distribution of air or vacuum in gripper systems

#### Technical data

Item no.	Suitable for extrusion system	Circuit	Number of inlets / outlets	Weight [g]	Suitable sealing plugs
<b>GR05.001</b>	SLine / MLine	1	1 inlet, 4 outlets	69	77.009 (p.455)
<b>GR05.002</b>	SLine / MLine	2	Each circuits with 1 inlet, 4 outlets	106	77.009 (p.455)
<b>GR05.003</b>	SLine / MLine	2	Each circuits with 1 inlet, 6 outlets	155	77.009 (p.455) 77.008 (p.455)

#### Dimensions



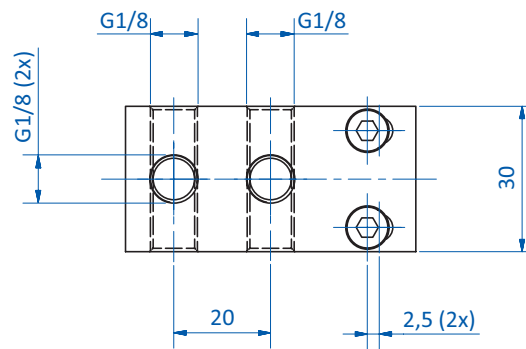
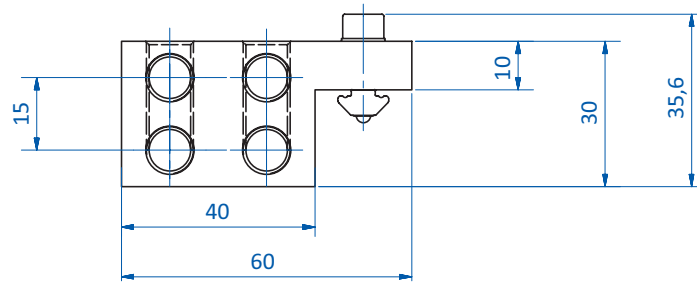
GR05.001

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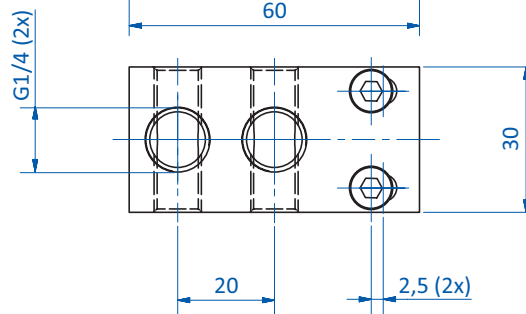
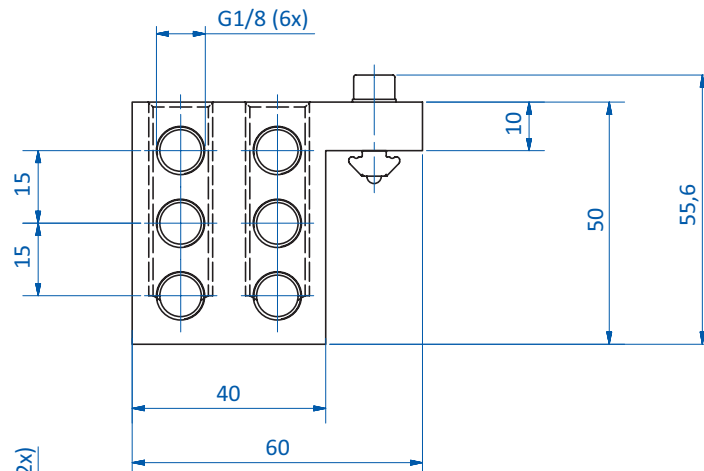




### Dimensions



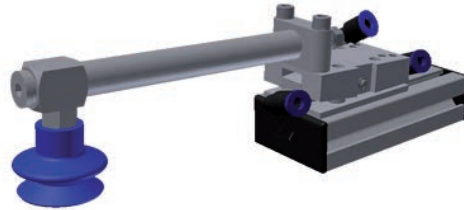
GR05.002



GR05.003



### Swivelling unit – universal, double-acting



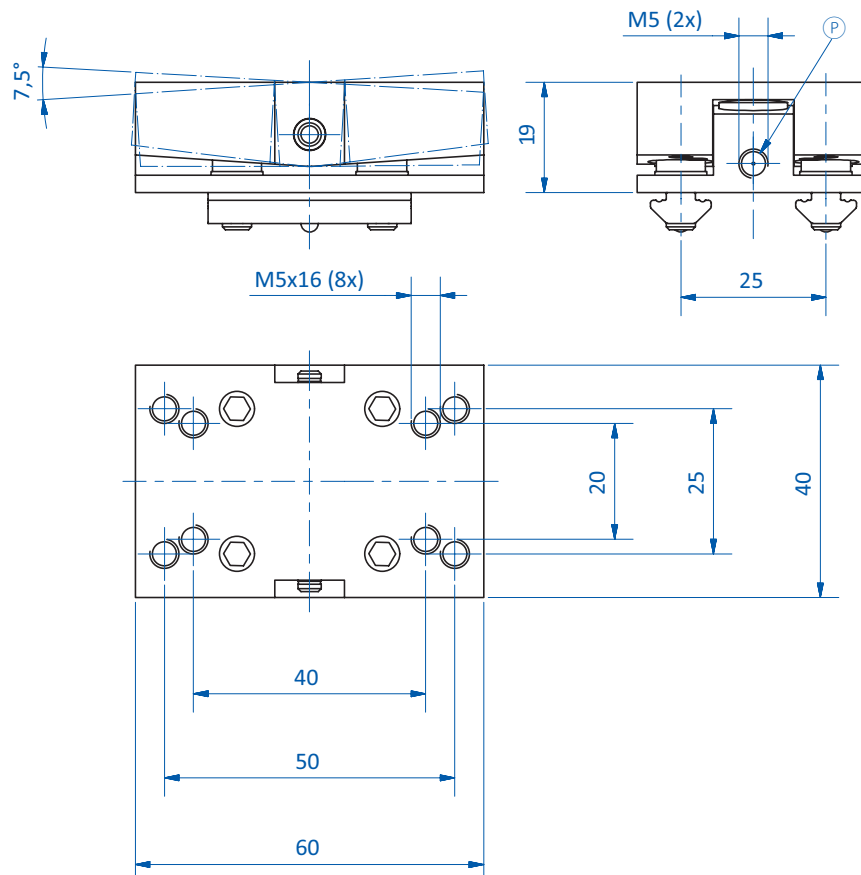
#### Product notes

- > Space-saving lateral application of vacuum cups to the workpiece
- > Double-acting, controlled swivel movement and short duty cycles

#### Technical data

Item no.	Principle of operation	Pressure range [bar (psi)]	Angle stroke [°]	Weight [g]
GR02.300	Double-acting	2 - 8 (29 - 116)	7.5	120

#### Dimensions



Ⓟ = Compressed air connection



### Pneumatic centering units



**STRONG HOLDING FORCE**

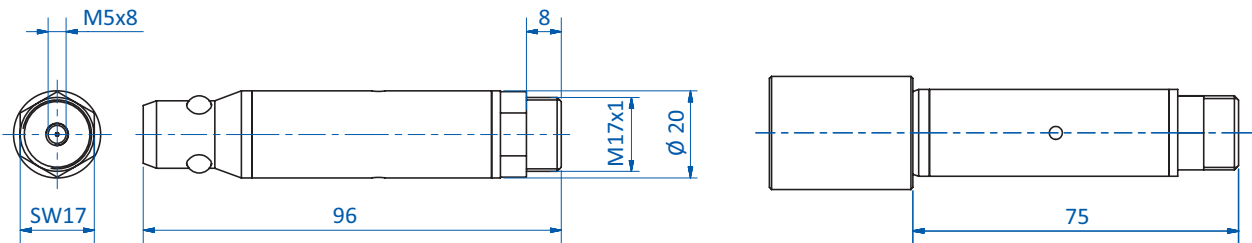
#### Product notes

- > Single-acting centering element for high-precision demolding
- > Strong holding force in the coupled system
- > Guiding sleeve embedded in the mold
- > Optional position monitoring (locked/unlocked) via PNP/NPN sensors
- > Sensor is fixed to centering unit via mounting bracket GR07.520S clamping diameter 20 mm
- > PNP and NPN sensors: C-Nut, straight: GR04.198, GR04.198/NPN

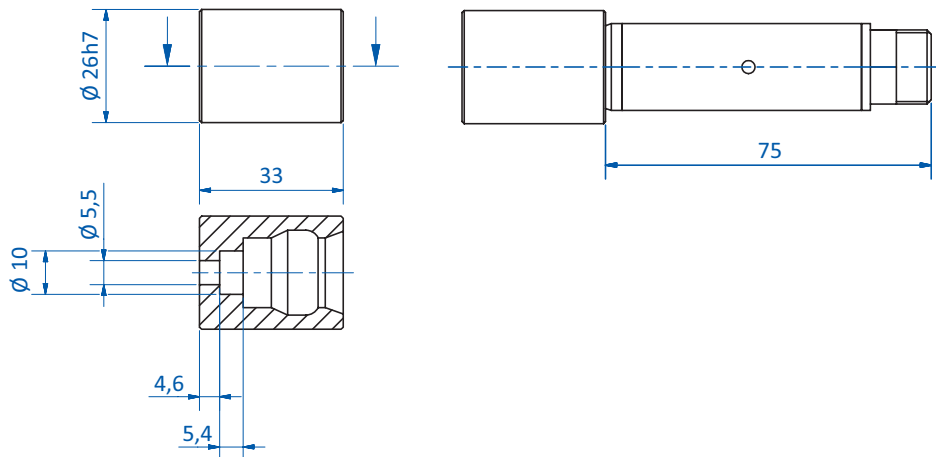
#### Technical data

Item no.	Description	Holding force at 6 bar (87 psi) [N]	Accessories
<b>GR07.520</b>	Centering unit	750	Sensor: GR04.198 (p.404) Sensor: GR04.198/NPN (p.404) Sensor mounting bracket: GR07.520S (p.101)
<b>GR07.521</b>	Guiding sleeve	--	--

#### Dimensions



GR07.520



GR07.521



### Sensor mounting bracket for centering unit



Display with centering unit

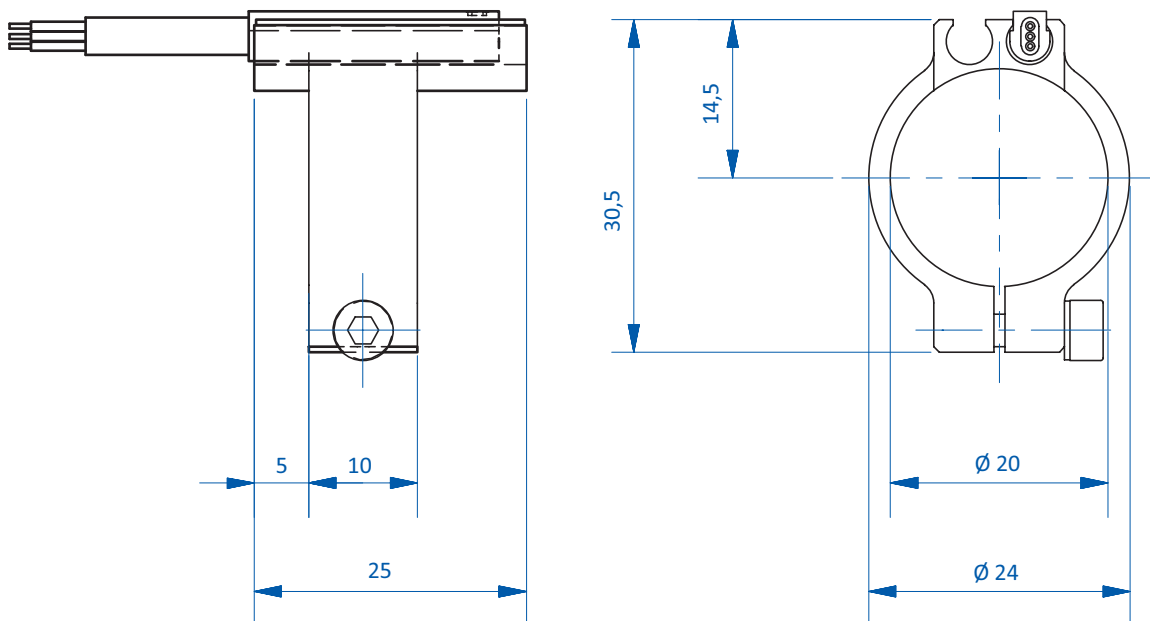
#### Product notes

- > Mounting bracket for monitoring locking stage (locked/unlocked)

#### Technical data

Item no.	Suitable for sensor	Suitable for centering unit	Weight [g]
<b>GR07.520S</b>	GR04.198, GR04.198/NPN	GR07.520	7

#### Dimensions





### Clamps for Plate-based EOAT



SUITABLE FOR PLATE-BASED EOAT

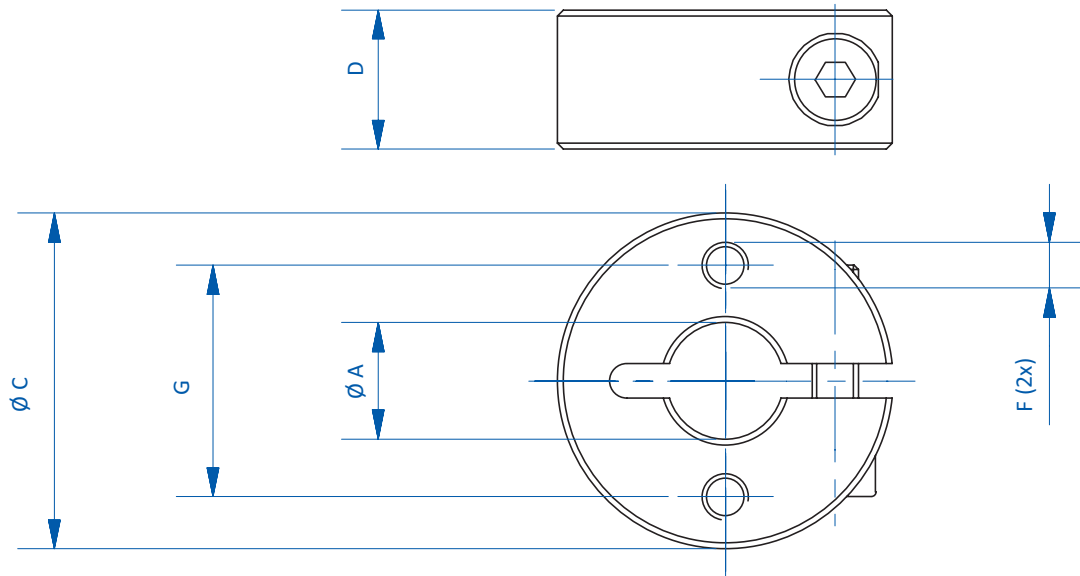
#### Product notes

> Clamps for mounting gripper components to plate-based EOAT

#### Technical data

Item no.	Weight [g]
GR06.060	16
GR06.061	24
GR06.062	82
GR06.063	138

#### Dimensions



Item no.	Ø A [mm]	F	G [mm]	Ø C [mm]	D [mm]
GR06.060	10	M4	20	29	12
GR06.061	14	M5	25	34	15
GR06.062	20	M6	32	49	22.5
GR06.063	30	M8	45	59	30