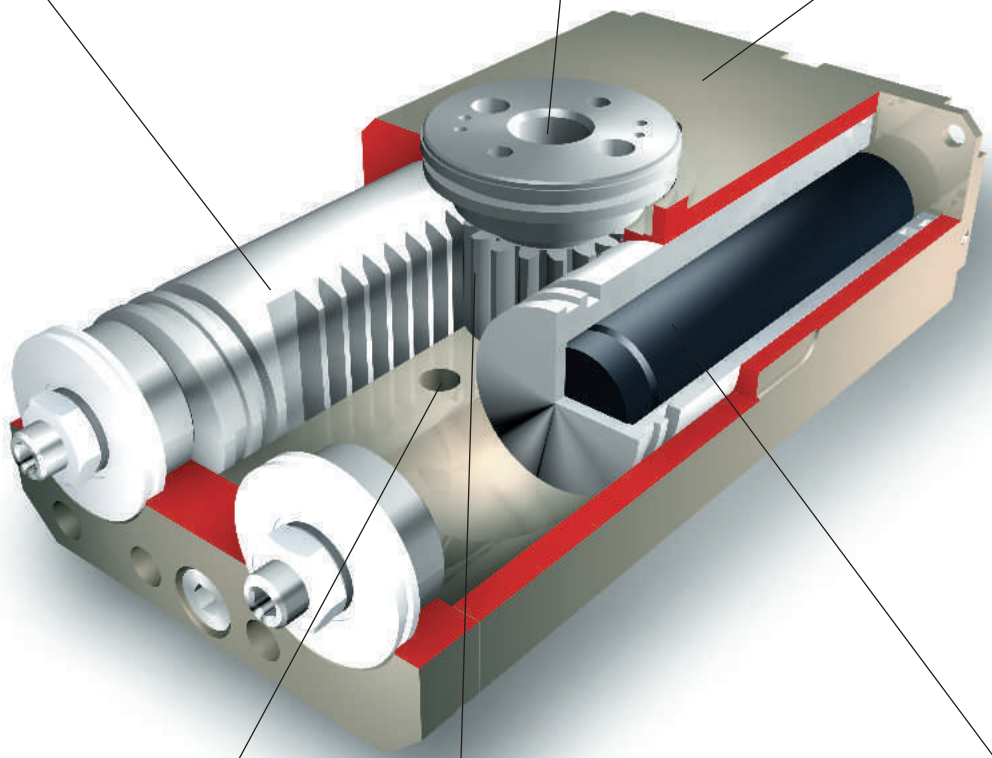
Swivel Unit
Hydraulically Damped Rotary Actuator



Center through-bore
for power cables or hoses

Housing
weight optimized using hard-anodized, high-tensile aluminum alloy

Drive
pneumatic, powerful

Dampening
self-adjusting oil pressure dampers for low vibration end position damping and high number of cycles

Kinetics
pinion/toothed rack system for low tolerance transmission of drive power in one rotation movement

Location and mounting
swivel unit has universal mount

OSE

Benefits

- Compact design
- Light weight
- Strong
- Durable
- End position setting of ± 2° without play
- Integrated end position dampening
- Sealed bearings
- End positions free from play
- Simple, easily accessible swivel angle monitoring (from outside) using proximity switch
- Swivel angle from 0° to 180°
- 90° intermediate position possible (pneumatic)
- Option of free adjustment of switching point
- Option of patented hose-free air feed-through
- Option with electrical rotary feed-through available
- Detailed operating and maintenance instructions
- Proven over thousands of applications
- 12 month warranty

Technical data

Operating principle:
driven by two pistons, power transmission and synchronization by means of pinion

Material:
housing made from high-tensile, hard-coated aluminum alloy.
Functional components made from hardened steel

Operation:
pneumatic, filtered compressed air (10 µm [0.393 mils]) dry or lubricated

Operating pressure range:
from 4.5 to 8 bar [65 to 116 psi]

Installation:
various positions

Operating temperature range:
from 5 °C to 60 °C [41 °F to 140 °F]

Parts supplied:
brackets for proximity switches, restrictors, centering sleeves, detailed operating and maintenance instructions, manufacturer's declaration

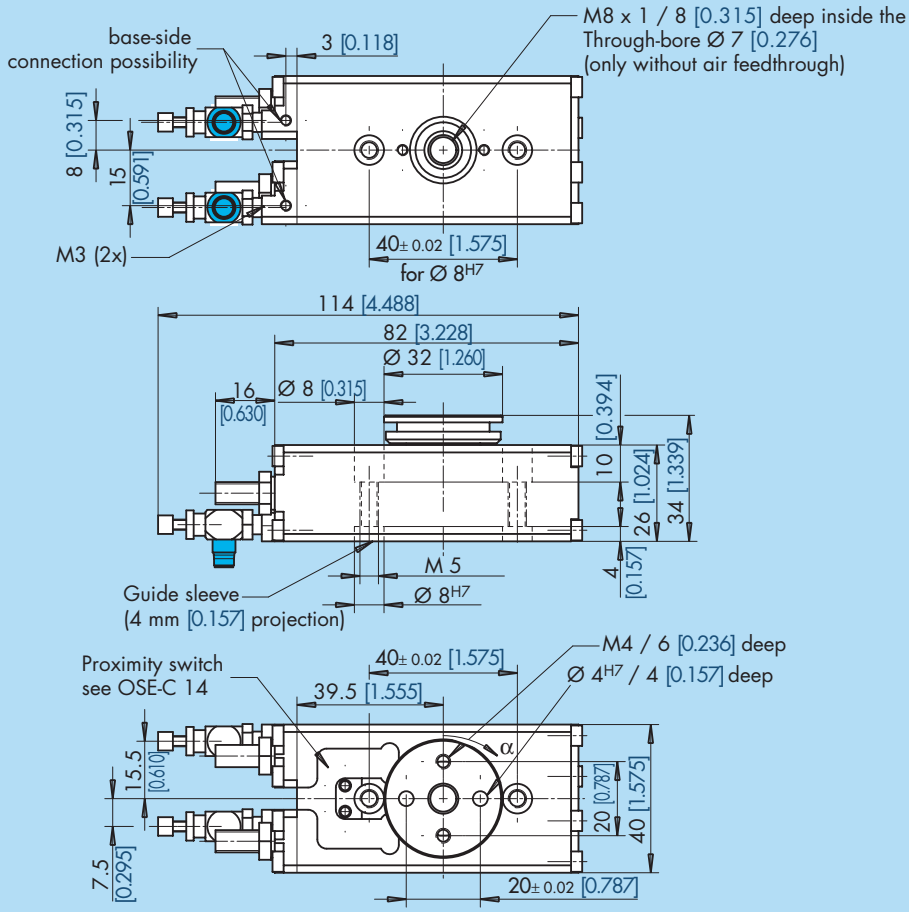
Accessories:
proximity switches, EDF electrically operated rotation device, pressure maintenance valve

Sensors NPN:
Sensors in NPN version available on request

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

● = Air connection



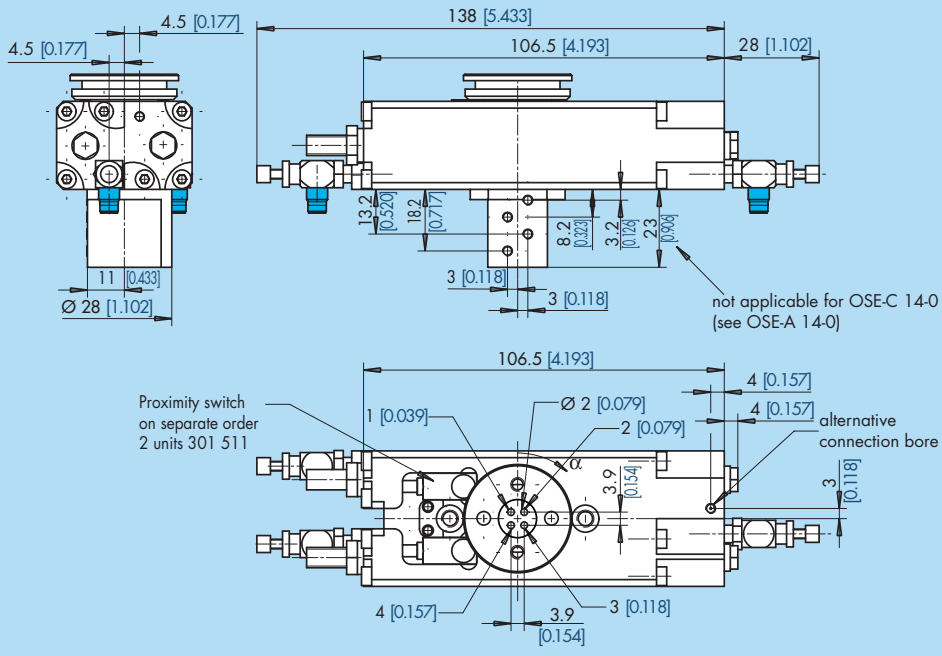
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°

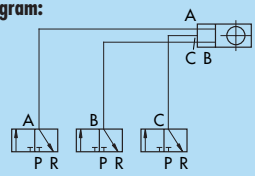


Angle of rotation definition

Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Circuit diagram:

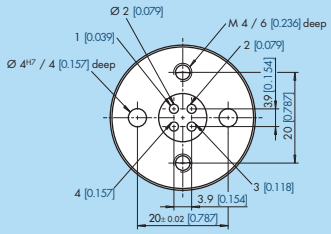


Remaining dimensions see basic variant A

Pinion screw diagrams (valid for variants A, C)

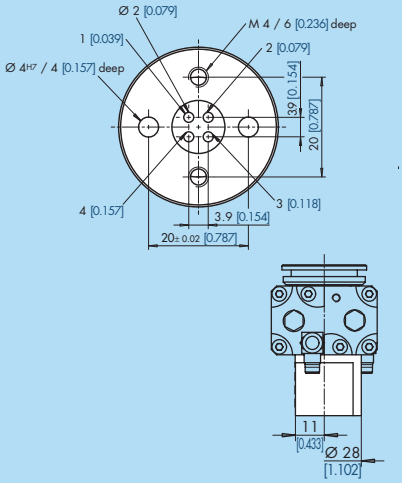
without air feed-through

Pinion

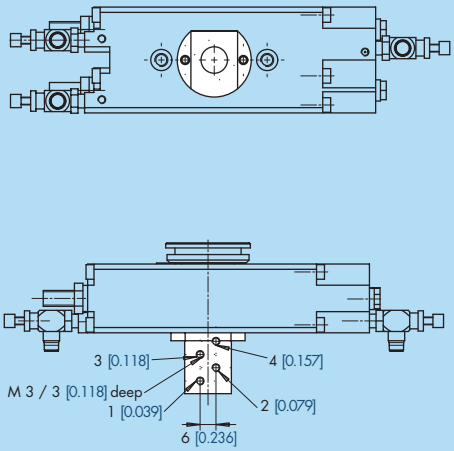


with air feed-through (4x)

Pinion



Connection to dome



OSE 14

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 14-0	OSE-A 14-4
	Id.-No.	354 100	354 104
Swivel angle		**0 – 180° right**	**0 – 180° right**
Number of feed-throughs		**0**	**4**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	0.6 [0.44]	0.6 [0.44]
Axial bearing load	N [lbf]	253 [56.88]	253 [56.88]
Radial bearing load	Nm [lbf·ft]	2.4 [1.77]	2.4 [1.77]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	6.8 [0.41]	6.8 [0.41]
Cycle time (1 x 180° without load)		0.3 s	0.3 s
Mass	kg [lbs]	0.33 [0.73]	0.43 [0.95]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	3 [1.03]	3 [1.03]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$

Swivel module	Type	OSE-C 14-0	OSE-C 14-4
	Id.-No.	354 120	354 124
Swivel angle		**0 – 90 – 180°**	**0 – 90 – 180°**
Number of feed-throughs		**0**	**4**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	0.6 [0.44]	0.6 [0.44]
Axial bearing load	N [lbf]	253 [56.88]	253 [56.88]
Radial bearing load	Nm [lbf·ft]	2.4 [1.77]	2.4 [1.77]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	6.8 [0.41]	6.8 [0.41]
Cycle time (1 x 180° without load)		0.3 s	0.3 s
Mass	kg [lbs]	0.41 [0.9]	0.51 [1.12]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	5.5 [1.88]	5.5 [1.88]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 14

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 8/S*	301 511

* S = closer

System modules and further accessories for OSE

Gripper
For combinable grippers, see the chapter on "Grippers".

Linear units
For combinable linear units, see the chapter on "Linear units".

Special solutions
We can quickly supply cost-effective custom solutions, customized fingers, attachment plates and complete units to suit your specialized requirements.

Hint

For a quick way of configuring our swivel modules we strongly recommend our calculation program SSE, downloadable on www.schunk.com

If you prefer, we would be happy to carry out this service for you.

Note

Please note that the life span of these units can be reduced considerably if they are used in extreme conditions (e.g. where coolant is used or dust from casting or grinding processes is present). We cannot be held responsible in such cases. Solutions do exist for many problems – please contact us to find out more.

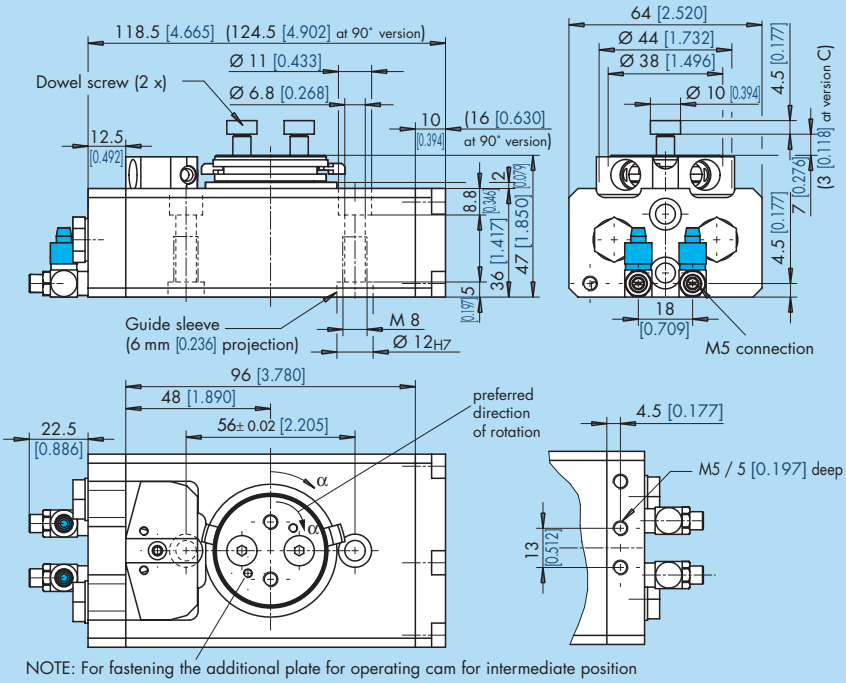
Notes

SCHUNK

● = Air connection

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°



NOTE: For fastening the additional plate for operating cam for intermediate position

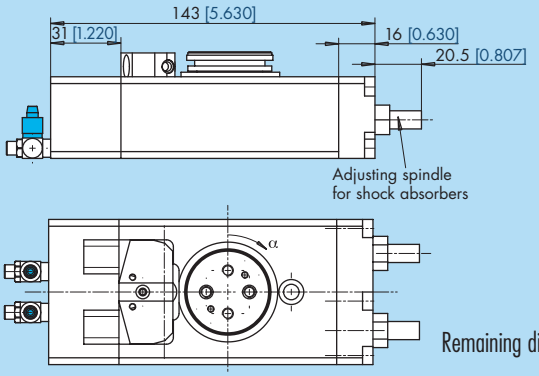
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions



Remaining dimensions see basic variant A

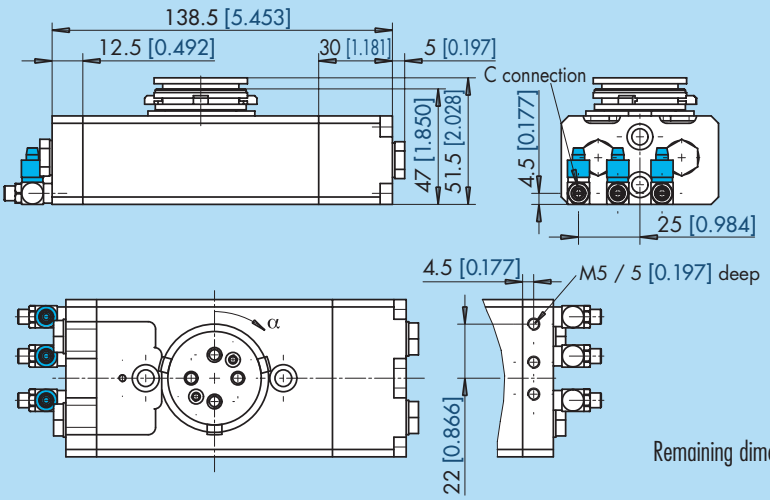
Angle of rotation definition
Please note that for angles of traverse smaller than 90°, the pinion screw diagram is rotated by 90°.

$0° \leq \alpha_1 \leq 90°$ $90° \leq \alpha_2 \leq 180°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°

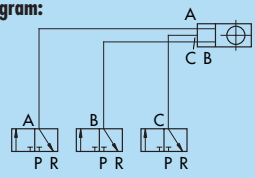


Remaining dimensions see basic variant A

Angle of rotation definition
Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

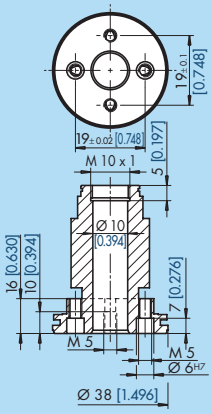
Circuit diagram:



Pinion screw diagrams (valid for variants A, B, C)

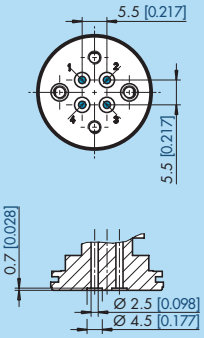
without air feed-through

Pinion

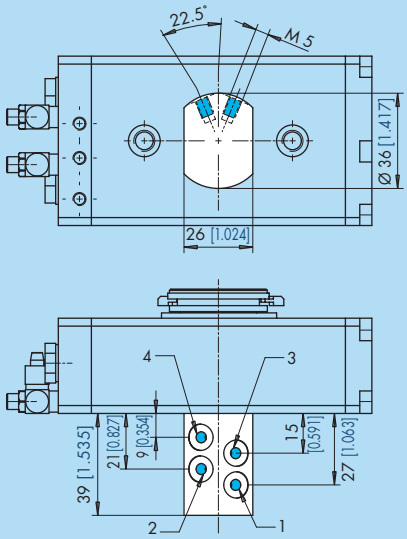


with air feed-through (4x)

Pinion

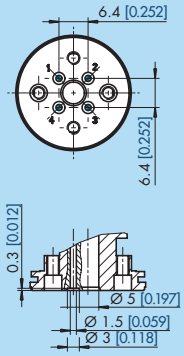


Connection to dome



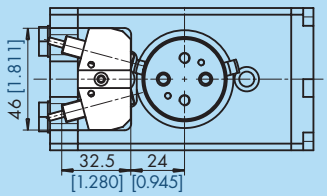
with air feed-through (4x) and center bore (on request)

Pinion

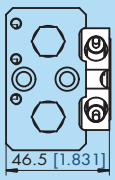


Attachment of proximity switches (valid for variants A, B, C)

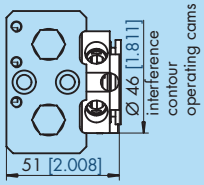
Top view variants A, B, C



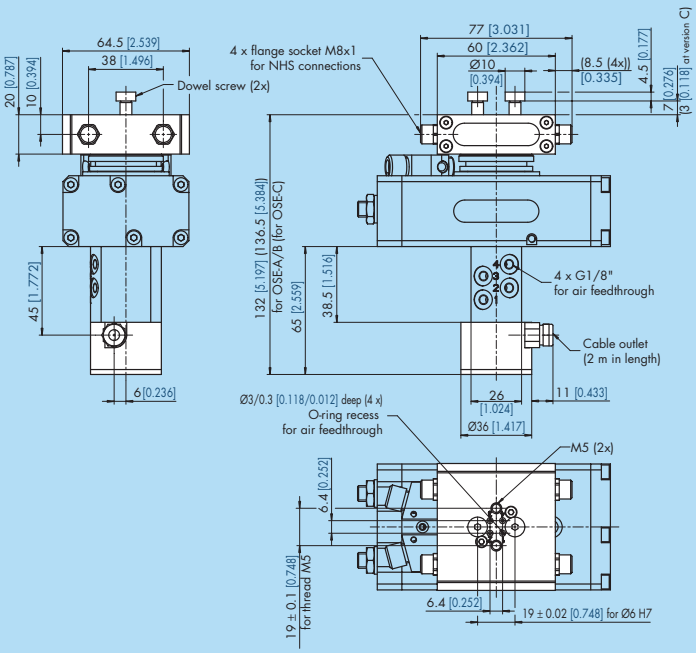
Side view variants A, B

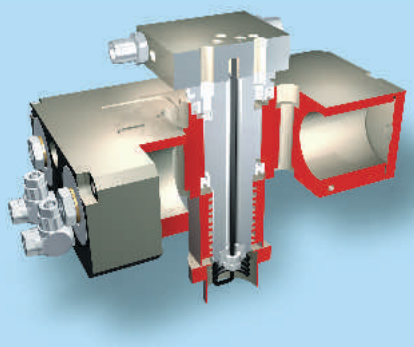


Side view variant C



Rotary module incl. EDF electric rotary feed-through (valid for variants A, B, C)





See page 368 for further data on the EDF electric rotary feed-through

OSE 22

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 22-0	OSE-A 22-4	OSE-A 22-0
	Id.-No.	354 200	354 204	354 240
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-A 22-4	
	Id.-No.		356 204	
Swivel angle		0 – 180°	0 – 180°	0 – 90° left
Number of feed-throughs		0	4	0
Torque at 6 bar [87 psi]	Nm [lbf·ft]	1.5 [1.11]	1.5 [1.11]	1.5 [1.11]
Axial bearing load	N [lbf]	800 [179.85]	800 [179.85]	800 [179.85]
Radial bearing load	Nm [lbf·ft]	10.4 [7.67]	10.4 [7.67]	10.4 [7.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	19 [1.16]	19 [1.16]	19 [1.16]
Cycle time (1 x 180° without load)		0.2 s	0.2 s	0.2 s
Mass	kg [lbs]	0.9 [1.98]	1.04/1.48 [2.29/3.26]	0.9 [1.98]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	16 [5.47]	16 [5.47]	16 [5.47]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

Swivel module	Type	OSE-A 22-4	OSE-A 22-0	OSE-A 22-4
	Id.-No.	354 244	354 250	354 254
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 22-4		OSE-EDF-A 22-4
	Id.-No.	356 244		356 254
Swivel angle		0 – 90° left	0 – 90° right	0 – 90° right
Number of feed-throughs		4	0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	1.5 [1.11]	1.5 [1.11]	1.5 [1.11]
Axial bearing load	N [lbf]	800 [179.85]	800 [179.85]	800 [179.85]
Radial bearing load	Nm [lbf·ft]	10.4 [7.67]	10.4 [7.67]	10.4 [7.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	19 [1.16]	19 [1.16]	19 [1.16]
Cycle time (1 x 180° without load)		0.2 s	0.2 s	0.2 s
Mass	kg [lbs]	1.04/1.48 [2.29/3.26]	0.9 [1.98]	1.04/1.48 [2.29/3.26]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	16 [5.47]	16 [5.47]	16 [5.47]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions

Swivel module	Type	OSE-B 22-0	OSE-B 22-4
	Id.-No.	354 210	354 214
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-B 22-4
	Id.-No.		356 214
Swivel angle		0 – 180°	0 – 180°
Number of feed-throughs		0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	1.5 [1.11]	1.5 [1.11]
Axial bearing load	N [lbf]	800 [179.85]	800 [179.85]
Radial bearing load	Nm [lbf·ft]	10.4 [7.67]	10.4 [7.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	19 [1.16]	19 [1.16]
Cycle time (1 x 180° without load)		0.2 s	0.2 s
Mass	kg [lbs]	1.1 [2.43]	1.24/1.68 [2.73/3.7]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	26 [8.88]	26 [8.88]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant C Angle of traverse α = 180° with intermediate position at α_3 = 90°

Swivel module	Type	OSE-C 22-0	OSE-C 22-4
	Id.-No.	354 220	354 224
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-C 22-4
	Id.-No.		356 224
Swivel angle		0 – 90 – 180°	0 – 90 – 180°
Number of feed-throughs		0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	1.5 [1.11]	1.5 [1.11]
Axial bearing load	N [lbf]	800 [179.85]	800 [179.85]
Radial bearing load	Nm [lbf·ft]	10.4 [7.67]	10.4 [7.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	19 [1.16]	19 [1.16]
Cycle time (1 x 180° without load)		0.2 s	0.2 s
Mass	kg [lbs]	1.25 [2.76]	1.39/1.83 [3.06/4.03]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	27 [9.23]	27 [9.23]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 22

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	301 508 altern. 301 408

* S = closer

System modules and further accessories for OSE

Gripper
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Linear units
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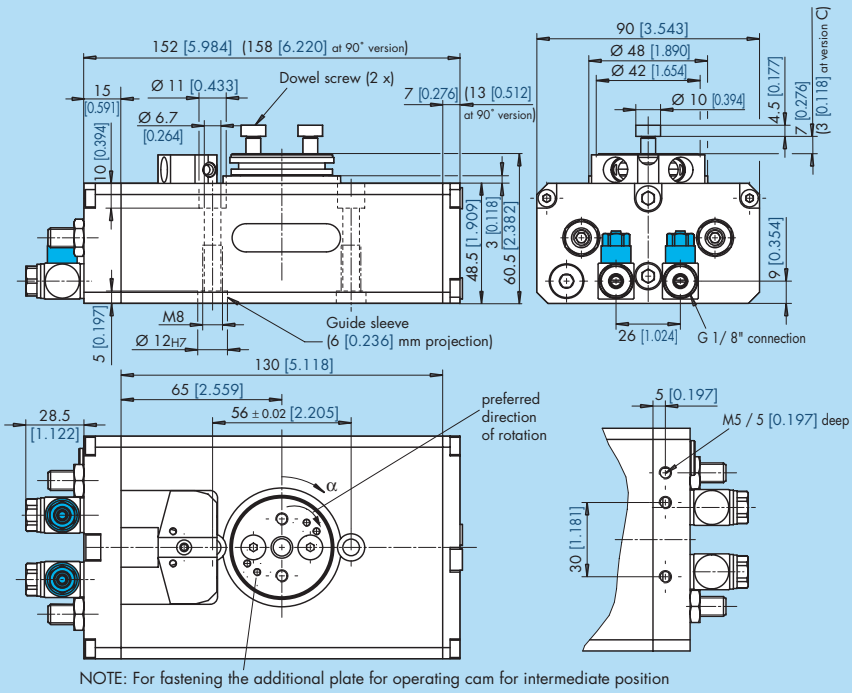
OSE 34

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

● = Air connection



NOTE: For fastening the additional plate for operating cam for intermediate position

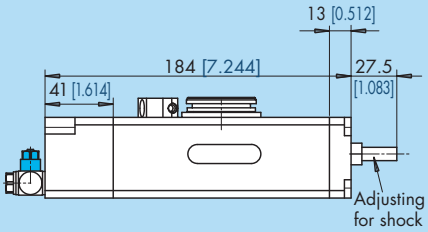
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions



Remaining dimensions see basic variant A

Angle of rotation definition

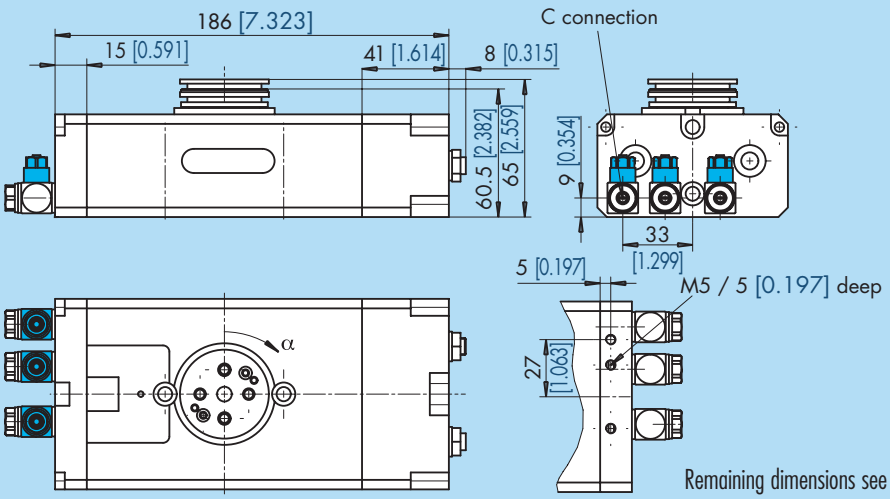
Please note that for angles of traverse smaller than 90°, the pinion screw diagram is rotated by 90°.

$0° \leq \alpha_1 \leq 90°$ $90° \leq \alpha_2 \leq 180°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°



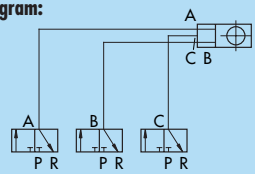
Remaining dimensions see basic variant A

Angle of rotation definition

Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

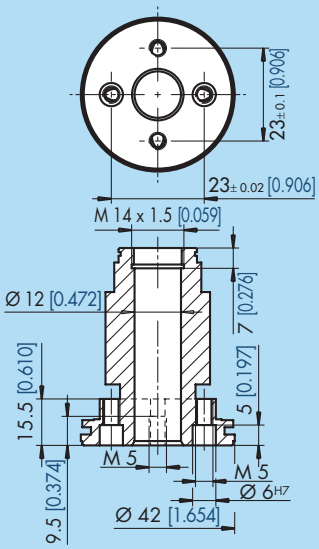
Circuit diagram:



Pinion screw diagrams (valid for variants A, B, C)

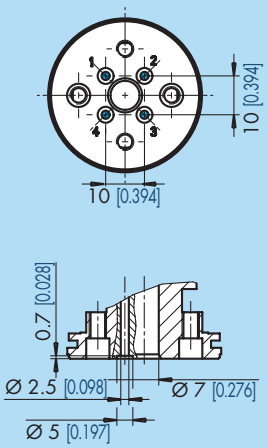
without air feed-through

Pinion

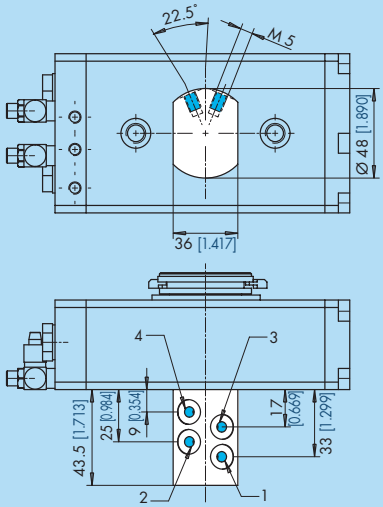


with air feed-through (4x)

Pinion

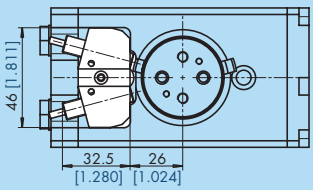


Connection to dome

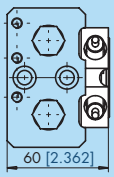


Attachment of proximity switches (valid for variants A, B, C)

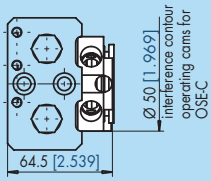
Top view variants A, B, C



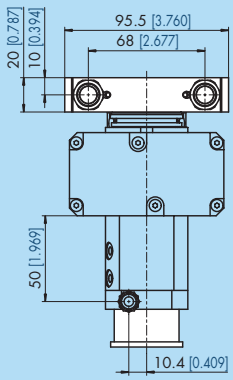
Side view variants A, B

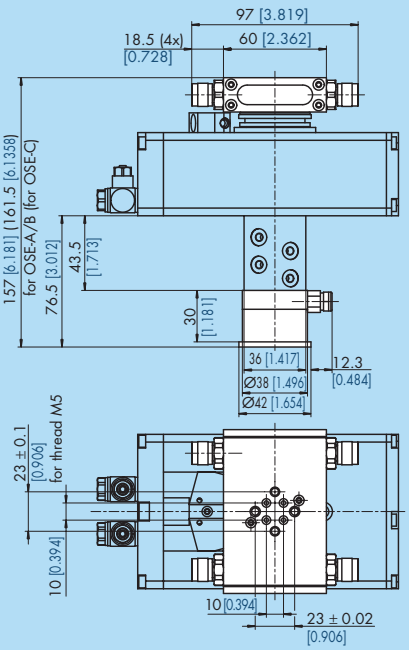


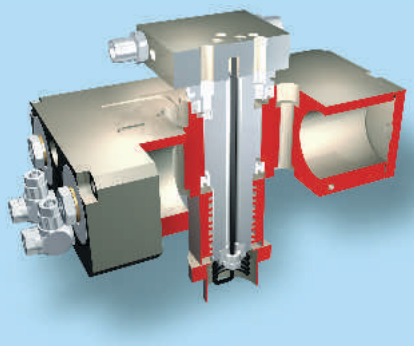
Side view variant C



Rotary module incl. EDF electric rotary feed-through (valid for variants A, B, C)







See page 368 for further data on the EDF electric rotary feed-through

OSE 34

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 34-0	OSE-A 34-4	OSE-A 34-0
	Id.-No.	354 300	354 304	354 340
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-A 34-4	
	Id.-No.		356 304	
Swivel angle		**0 – 180°**	**0 – 180°**	**0 – 90° left**
Number of feed-throughs		**0**	**4**	**0**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	6.5 [4.8]	6.5 [4.8]	6.5 [4.8]
Axial bearing load	N [lbf]	1500 [337.22]	1500 [337.22]	1500 [337.22]
Radial bearing load	Nm [lbf·ft]	30.8 [22.72]	30.8 [22.72]	30.8 [22.72]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	71 [4.33]	71 [4.33]	71 [4.33]
Cycle time (1 x 180° without load)		0.33 s	0.33 s	0.33 s
Mass	kg [lbs]	2.3 [5.07]	2.57/3.07 [5.67/6.77]	2.3 [5.07]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	67 [22.9]	67 [22.9]	67 [22.9]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

Swivel module	Type	OSE-A 34-4	OSE-A 34-0	OSE-A 34-4
	Id.-No.	354 344	354 350	354 354
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 34-4		OSE-EDF-A 34-4
	Id.-No.	356 344		356 354
Swivel angle		**0 – 90° left**	**0 – 90° right**	**0 – 90° right**
Number of feed-throughs		**4**	**0**	**4**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	6.5 [4.8]	6.5 [4.8]	6.5 [4.8]
Axial bearing load	N [lbf]	1500 [337.22]	1500 [337.22]	1500 [337.22]
Radial bearing load	Nm [lbf·ft]	30.8 [22.72]	30.8 [22.72]	30.8 [22.72]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	71 [4.33]	71 [4.33]	71 [4.33]
Cycle time (1 x 180° without load)		0.33 s	0.33 s	0.33 s
Mass	kg [lbs]	2.57/3.07 [5.67/6.77]	2.3 [5.07]	2.57/3.07 [5.67/6.77]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	67 [22.9]	67 [22.9]	67 [22.9]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions

Swivel module	Type	OSE-B 34-0	OSE-B 34-4
	Id.-No.	354 310	354 314
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-B 34-4
	Id.-No.		356 314
Swivel angle		**0 – 180°**	**0 – 180°**
Number of feed-throughs		**0**	**4**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	6.5 [4.8]	6.5 [4.8]
Axial bearing load	N [lbf]	1500 [337.22]	1500 [337.22]
Radial bearing load	Nm [lbf·ft]	30.8 [22.72]	30.8 [22.72]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	71 [4.33]	71 [4.33]
Cycle time (1 x 180° without load)		0.33 s	0.33 s
Mass	kg [lbs]	2.7 [5.95]	2.97/3.47 [6.55/7.65]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	104 [35.54]	104 [35.54]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant C Angle of traverse α = 180° with intermediate position at α_3 = 90°

Swivel module	Type	OSE-C 34-0	OSE-C 34-4
	Id.-No.	354 320	354 324
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-C 34-4
	Id.-No.		356 324
Swivel angle		0 – 90 – 180°	0 – 90 – 180°
Number of feed-throughs		0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	6.5 [4.8]	6.5 [4.8]
Axial bearing load	N [lbf]	1500 [337.22]	1500 [337.22]
Radial bearing load	Nm [lbf·ft]	30.8 [22.72]	30.8 [22.72]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	71 [4.33]	71 [4.33]
Cycle time (1 x 180° without load)		0.33 s	0.33 s
Mass	kg [lbs]	2.9 [6.39]	3.17/3.67 [6.99/8.09]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	113 [38.61]	113 [38.61]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 34

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	301 508 altern. 301 408

* S = closer

System modules and further accessories for OSE

Gripper
For combinable grippers, see the chapter on "Grippers".

Linear units
For combinable linear units, see the chapter on "Linear units".

Special solutions
We can quickly supply cost-effective custom solutions, customized fingers, attachment plates and complete units to suit your specialized requirements.

Hint

For a quick way of configuring our swivel modules we strongly recommend our calculation program SSE, downloadable on www.schunk.com

If you prefer, we would be happy to carry out this service for you.

Note

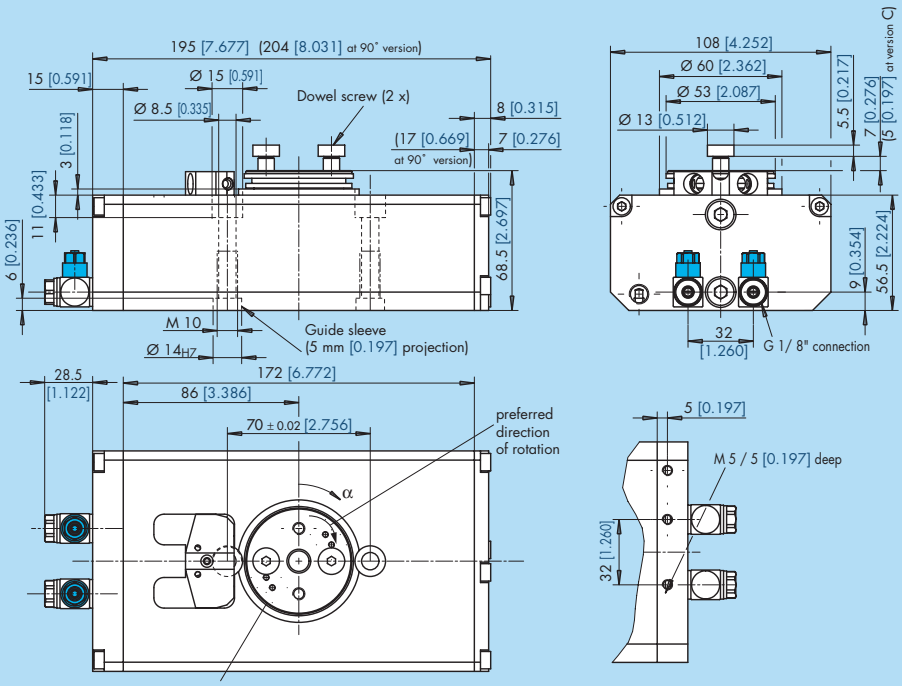
Please note that the life span of these units can be reduced considerably if they are used in extreme conditions (e.g. where coolant is used or dust from casting or grinding processes is present). We cannot be held responsible in such cases. Solutions do exist for many problems – please contact us to find out more.

OSE 40

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

● = Air connection



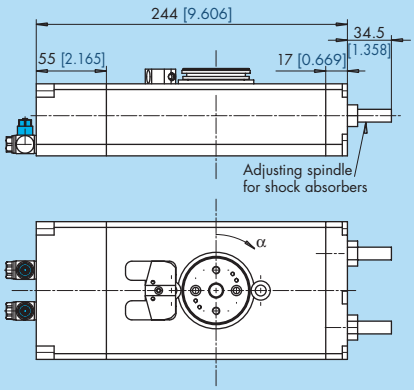
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions



Remaining dimensions see basic variant A

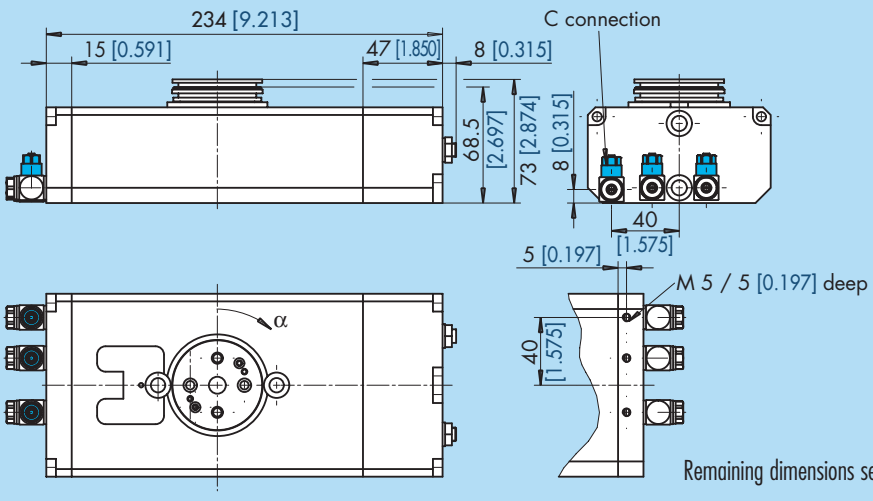
Angle of rotation definition
Please note that for angles of traverse smaller than 90°, the pinion screw diagram is rotated by 90°.

$0° \leq \alpha_1 \leq 90°$ $90° \leq \alpha_2 \leq 180°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°

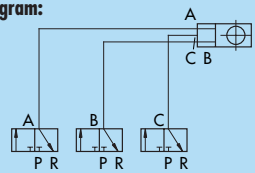


Remaining dimensions see basic variant A

Angle of rotation definition
Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Circuit diagram:

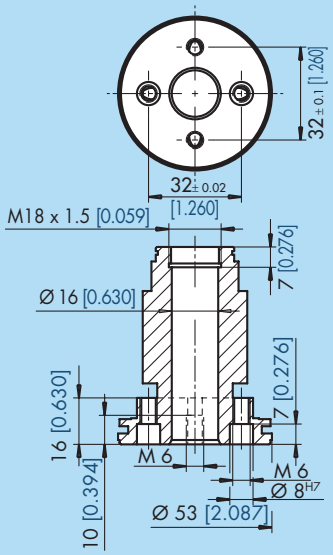


SCHUNK

Pinion screw diagrams (valid for variants A, B, C)

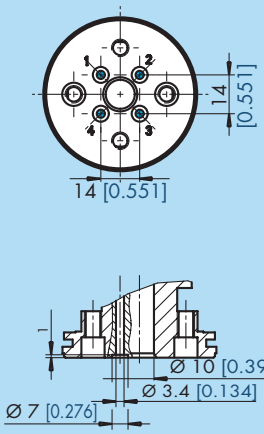
without air feed-through

Pinion

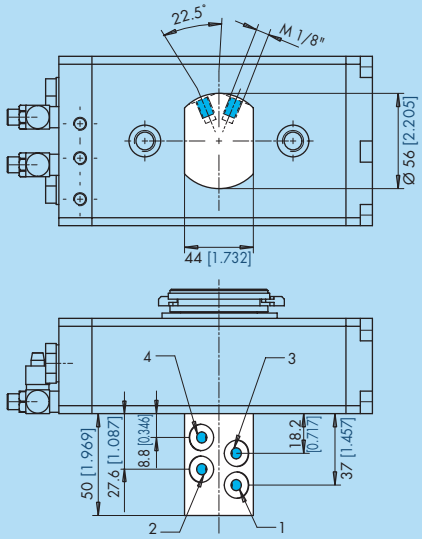


with air feed-through (4x)

Pinion

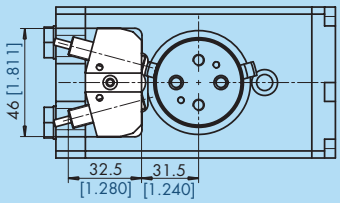


Connection to dome

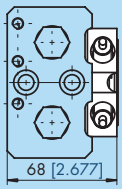


Attachment of proximity switches (valid for variants A, B, C)

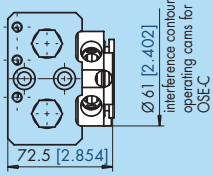
Top view variants A, B, C



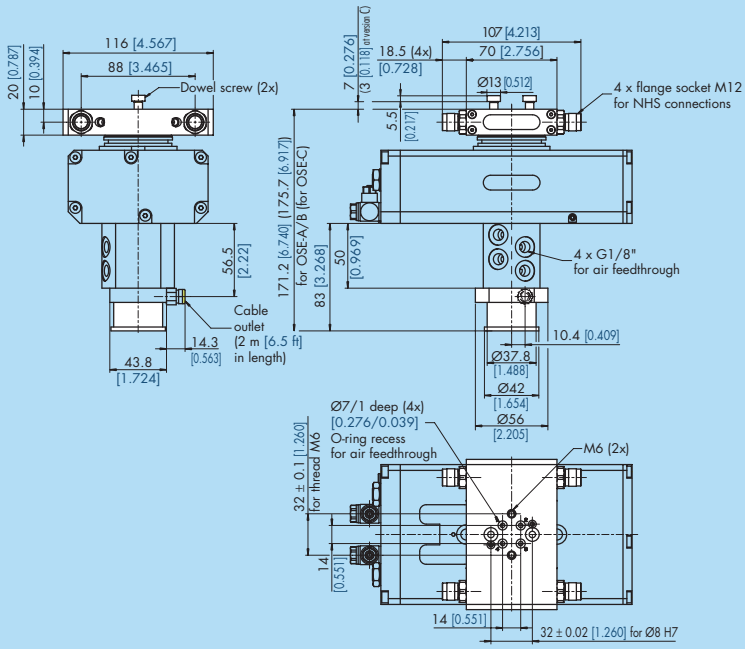
Side view variants A, B

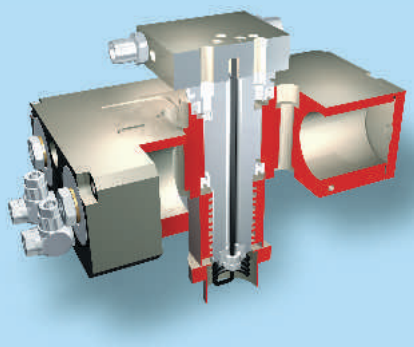


Side view variant C



Rotary module incl. EDF electric rotary feed-through (valid for variants A, B, C)





See page 368 for further data on the EDF electric rotary feed-through

OSE 40

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 40-0	OSE-A 40-4	OSE-A 40-0
	Id.-No.	354 400	354 404	354 440
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-A 40-4	
	Id.-No.		356 404	
Swivel angle		0 – 180°	0 – 180°	0 – 90° left
Number of feed-throughs		0	4	0
Torque at 6 bar [87 psi]	Nm [lbf·ft]	11.5 [8.48]	11.5 [8.48]	11.5 [8.48]
Axial bearing load	N [lbf]	2900 [651.95]	2900 [651.95]	2900 [651.95]
Radial bearing load	Nm [lbf·ft]	68 [50.17]	68 [50.17]	68 [50.17]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	126 [7.69]	126 [7.69]	126 [7.69]
Cycle time (1 x 180° without load)		0.8 s	0.8 s	0.8 s
Mass	kg [lbs]	4.2 [9.26]	4.65/5.29 [10.25/11.66]	4.2 [9.26]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	188 [64.24]	188 [64.24]	188 [64.24]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

Swivel module	Type	OSE-A 40-4	OSE-A 40-0	OSE-A 40-4
	Id.-No.	354 444	354 450	354 454
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 40-4		OSE-EDF-A 40-4
	Id.-No.	356 444		356 454
Swivel angle		0 – 90° left	0 – 90° right	0 – 90° right
Number of feed-throughs		4	0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	11.5 [8.48]	11.5 [8.48]	11.5 [8.48]
Axial bearing load	N [lbf]	2900 [651.95]	2900 [651.95]	2900 [651.95]
Radial bearing load	Nm [lbf·ft]	68 [50.17]	68 [50.17]	68 [50.17]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	126 [7.69]	126 [7.69]	126 [7.69]
Cycle time (1 x 180° without load)		0.8 s	0.8 s	0.8 s
Mass	kg [lbs]	4.65/5.29 [10.25/11.66]	4.2 [9.26]	4.65/5.29 [10.25/11.66]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	188 [64.24]	188 [64.24]	188 [64.24]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions

Swivel module	Type	OSE-B 40-0	OSE-B 40-4
	Id.-No.	354 410	354 414
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-B 40-4
	Id.-No.		356 414
Swivel angle		0 – 180°	0 – 180°
Number of feed-throughs		0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	11.5 [8.48]	11.5 [8.48]
Axial bearing load	N [lbf]	2900 [651.95]	2900 [651.95]
Radial bearing load	Nm [lbf·ft]	68 [50.17]	68 [50.17]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	126 [7.69]	126 [7.69]
Cycle time (1 x 180° without load)		0.8 s	0.8 s
Mass	kg [lbs]	5 [11.02]	5.45/6.09 [12.02/13.43]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	322 [110.03]	322 [110.03]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant C Angle of traverse α = 180° with intermediate position at α_3 = 90°

Swivel module	Type	OSE-C 40-0	OSE-C 40-4
	Id.-No.	354 420	354 424
Swivel module incl. elec. feed-through EDF	Type		OSE-EDF-C 40-4
	Id.-No.		356 424
Swivel angle		0 – 90 – 180°	0 – 90 – 180°
Number of feed-throughs		0	4
Torque at 6 bar [87 psi]	Nm [lbf·ft]	11.5 [8.48]	11.5 [8.48]
Axial bearing load	N [lbf]	2900 [651.95]	2900 [651.95]
Radial bearing load	Nm [lbf·ft]	68 [50.17]	68 [50.17]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	126 [7.69]	126 [7.69]
Cycle time (1 x 180° without load)		0.8 s	0.8 s
Mass	kg [lbs]	5.1 [11.24]	5.55/6.19 [12.24/13.65]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	307 [104.91]	307 [104.91]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 40

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	301 508 altern. 301 408

* S = closer

System modules and further accessories for OSE

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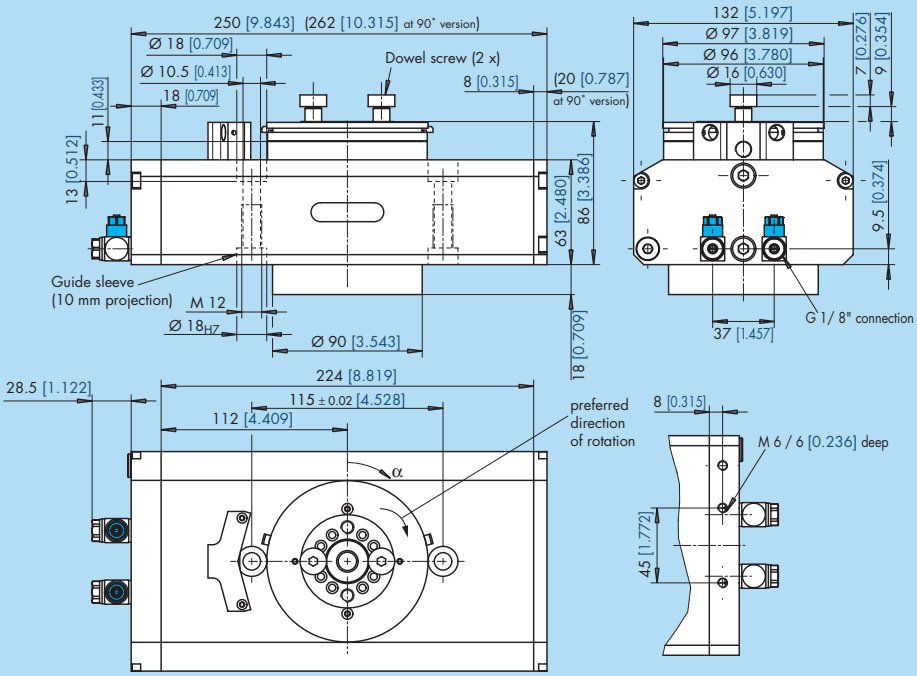
OSE 45

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

● = Air connection



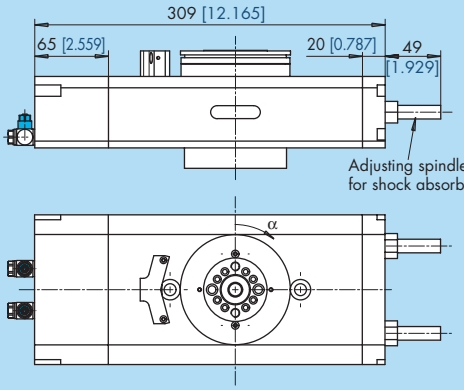
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions



Remaining dimensions see basic variant A

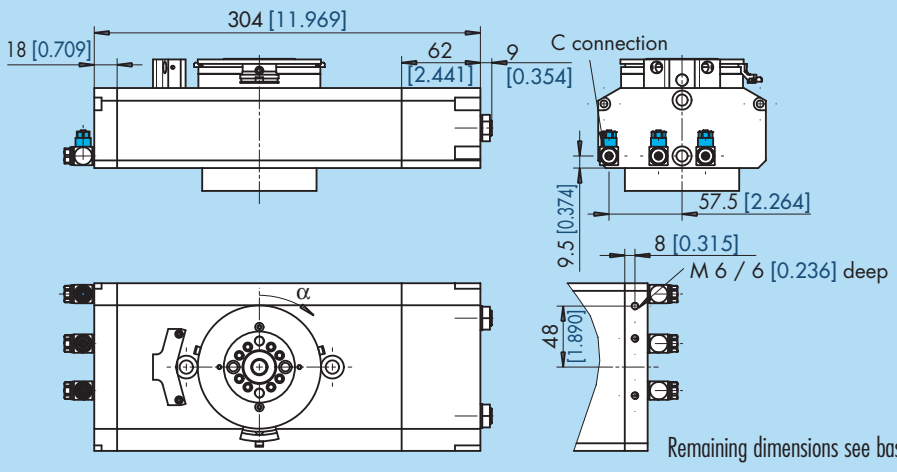
Angle of rotation definition
Please note that for angles of traverse smaller than 90°, the pinion screw diagram is rotated by 90°.

$0° \leq \alpha_1 \leq 90°$ $90° \leq \alpha_2 \leq 180°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°

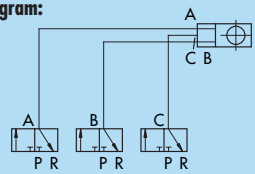


Remaining dimensions see basic variant A

Angle of rotation definition
Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

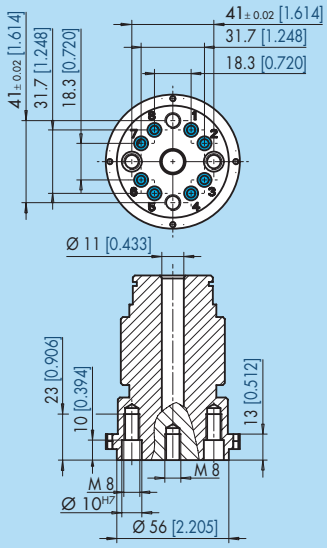
Circuit diagram:



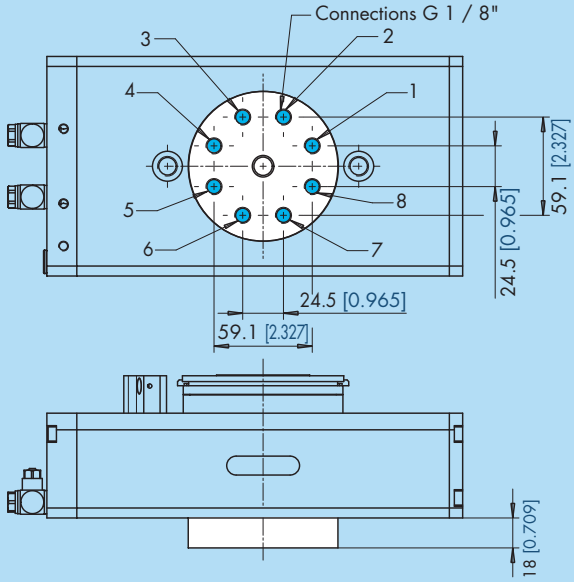
Pinion screw diagrams (valid for variants A, B, C)

with air feed-through (8x)

Pinion

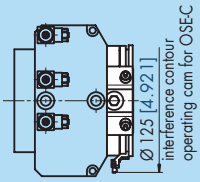


Connection to dome

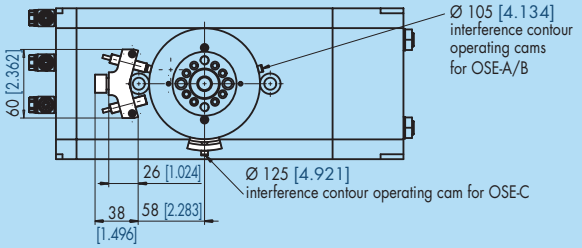


Attachment of proximity switches (valid for variants A, B, C)

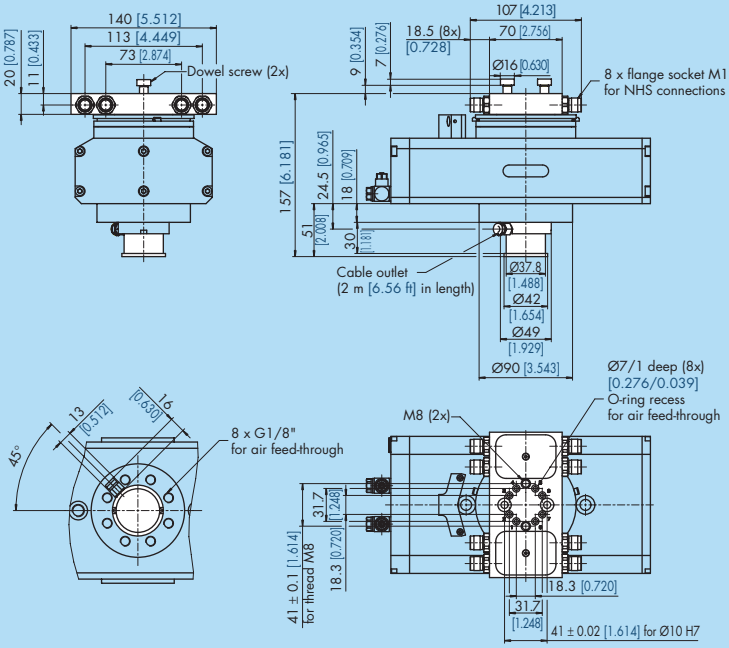
Side view variants A, B, C

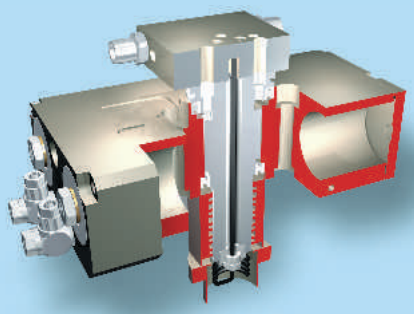


Top view variants A, B, C



Rotary module incl. EDF electric rotary feed-through (valid for variants A, B, C)





See page 368 for further data on the EDF electric rotary feed-through

OSE 45

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 45-8	OSE-A 45-8	OSE-A 45-8
	Id.-No.	354 500	354 540	354 550
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 45-8	OSE-EDF-A 45-8	OSE-EDF-A 45-8
	Id.-No.	356 500	356 540	356 550
Swivel angle		**0 – 180°**	**0 – 90° left**	**0 – 90° right**
Number of feed-throughs		**8**	**8**	**8**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	22 [16.23]	22 [16.23]	22 [16.23]
Axial bearing load	N [lbf]	9000 [2023.29]	9000 [2023.29]	9000 [2023.29]
Radial bearing load	Nm [lbf·ft]	272 [200.67]	272 [200.67]	272 [200.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	240 [14.64]	240 [14.64]	240 [14.64]
Cycle time (1 x 180° without load)		0.55 s	0.55 s	0.55 s
Mass	kg [lbs]	8.0/9.06 [17.64/19.97]	8.0/9.06 [17.64/19.97]	8.0/9.06 [17.64/19.97]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	527 [180.08]	527 [180.08]	527 [180.08]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$

Swivel module	Type	OSE-B 45-8	OSE-C 45-8
	Id.-No.	354 510	354 520
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-B 45-8	OSE-EDF-C 45-8
	Id.-No.	356 510	356 520
Swivel angle		**0 – 180°**	**0 – 90 – 180°**
Number of feed-throughs		**8**	**8**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	22 [16.23]	22 [16.23]
Axial bearing load	N [lbf]	9000 [2023.29]	9000 [2023.29]
Radial bearing load	Nm [lbf·ft]	272 [200.67]	272 [200.67]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	240 [14.64]	240 [14.64]
Cycle time (1 x 180° without load)		0.55 s	0.55 s
Mass	kg [lbs]	8.0/9.06 [17.64/19.97]	8.0/9.06 [17.64/19.97]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	527 [180.08]	527 [180.08]
Repeat accuracy *		0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 45

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	301 508 altern. 301 408

* S = closer

System modules and further accessories for OSE

Gripper
For combinable grippers, see the chapter on "Grippers".

Linear units
For combinable linear units, see the chapter on "Linear units".

Special solutions
We can quickly supply cost-effective custom solutions, customized fingers, attachment plates and complete units to suit your specialized requirements.

Note

Please note that the life span of these units can be reduced considerably if they are used in extreme conditions (e.g. where coolant is used or dust from casting or grinding processes is present). We cannot be held responsible in such cases. Solutions do exist for many problems – please contact us to find out more.

Hint

For a quick way of configuring our swivel modules we strongly recommend our calculation program SSE, downloadable on www.schunk.com

If you prefer, we would be happy to carry out this service for you.

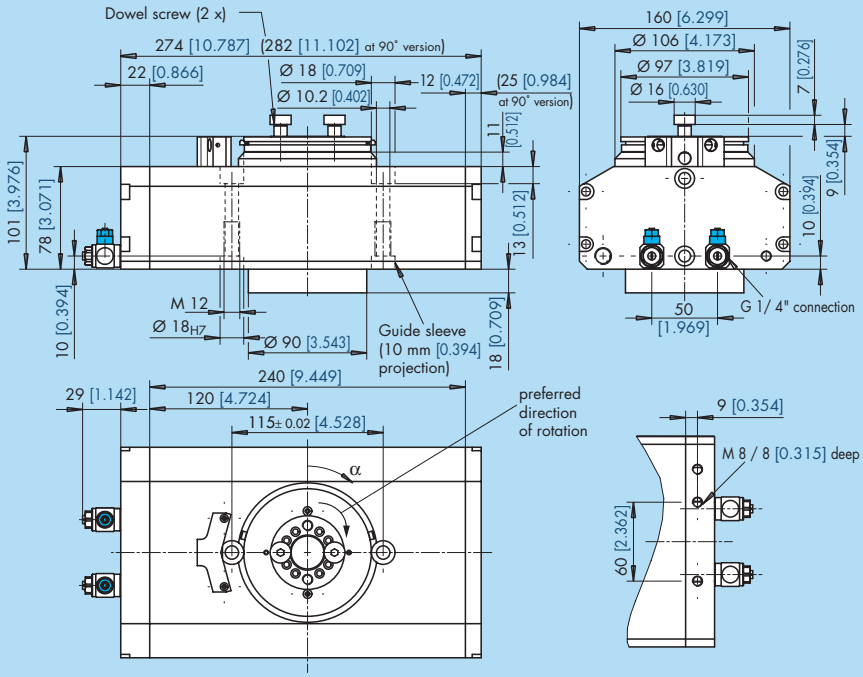
Notes

OSE 57

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

● = Air connection



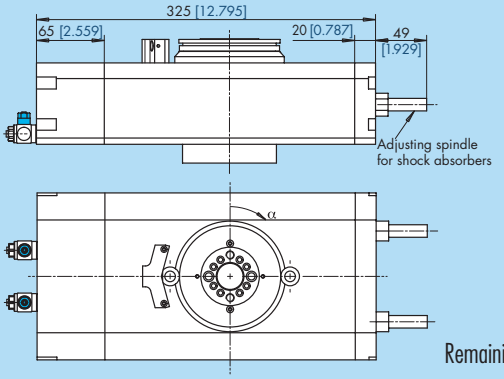
Angle of rotation definition

$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant B

Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions



Remaining dimensions see basic variant A

Angle of rotation definition

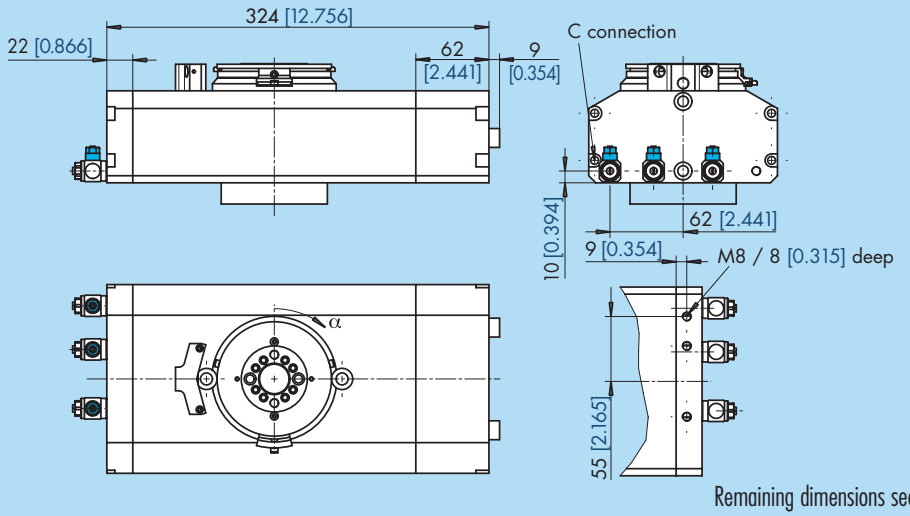
Please note that for angles of traverse smaller than 90°, the pinion screw diagram is rotated by 90°.

$0° \leq \alpha_1 \leq 90°$ $90° \leq \alpha_2 \leq 180°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Variant C

Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$ End positions adjustable ± 2°



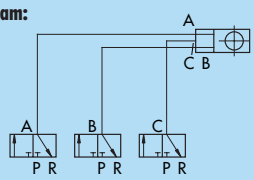
Remaining dimensions see basic variant A

Angle of rotation definition

Angle of traverse $\alpha = 180°$
End positions adjustable ± 2°
$\alpha_1 = 0° \pm 2°$ α_1: Starting angle
$\alpha_2 = 180° \pm 2°$ α_2: End angle
$\alpha_3 = 90° \pm 2°$ α_3: Angle middle position

$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

Circuit diagram:



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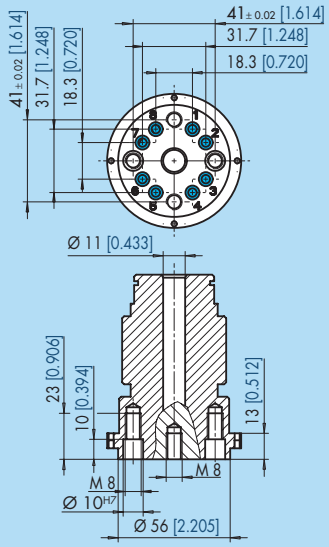
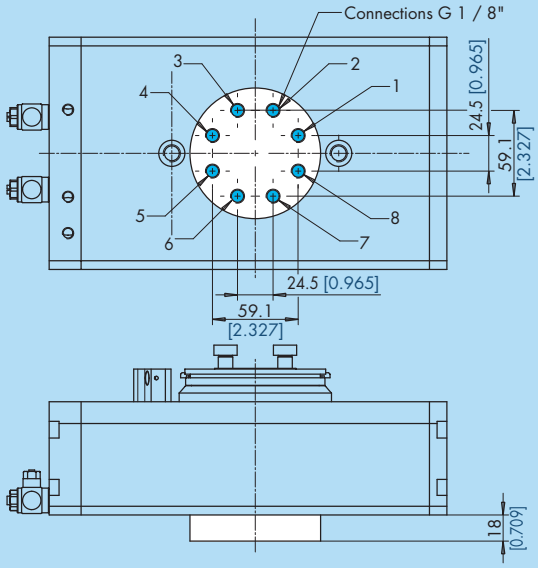
Pinion screw diagrams (valid for variants A, B, C)

with air feed-through (8x)

Pinion

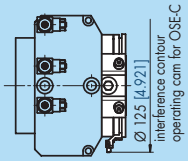


Connection to dome

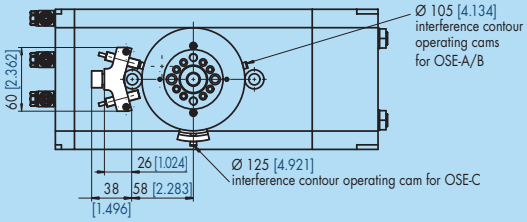


Attachment of proximity switches (valid for variants A, B, C)

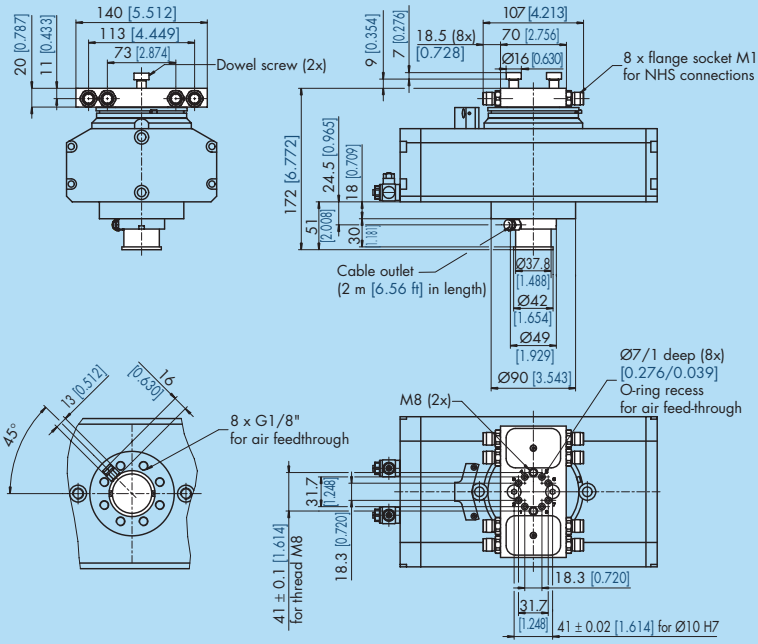
Side view variants A, B, C

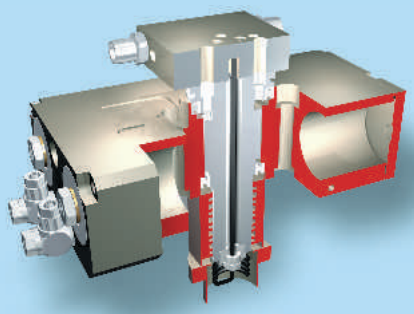


Top view variants A, B, C



Rotary module incl. EDF electric rotary feed-through (valid for variants A, B, C)





See page 368 for further data on the EDF electric rotary feed-through

OSE 57

Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 57-8	OSE-A 57-8	OSE-A 57-8
	Id.-No.	354 600	354 640	354 650
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 57-8	OSE-EDF-A 57-8	OSE-EDF-A 57-8
	Id.-No.	356 600	356 640	356 650
Swivel angle		**0 – 180°**	**0 – 90° left**	**0 – 90° right**
Number of feed-throughs		**8**	**8**	**8**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	36 [26.56]	36 [26.56]	36 [26.56]
Axial bearing load	N [lbf]	9000 [2023.29]	9000 [2023.29]	9000 [2023.29]
Radial bearing load	Nm [lbf·ft]	340 [250.84]	340 [250.84]	340 [250.84]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	384 [23.43]	384 [23.43]	384 [23.43]
Cycle time (1 x 180° without load)		0.9 s	0.9 s	0.9 s
Mass	kg [lbs]	12.6/13.4 [27.78/29.54]	12.6/13.4 [27.78/29.54]	12.6/13.4 [27.78/29.54]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	1057 [361.19]	1057 [361.19]	1057 [361.19]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

Swivel module	Type	OSE-A 57/2-8
	Id.-No.	354 700
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-A 57/2-8
	Id.-No.	356 700
Swivel angle		**0 – 180°**
Number of feed-throughs		**8**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	72 [53.12]
Axial bearing load	N [lbf]	9000 [2023.29]
Radial bearing load	Nm [lbf·ft]	340 [250.84]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	768 [46.86]
Cycle time (1 x 180° without load)		0.9 s
Mass	kg [lbs]	12.6/13.4 [27.78/29.54]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	1057 [361.19]
Repeat accuracy *		0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

OSE 57

Variant B
Angle of traverse $0° \leq \alpha \leq 180°$ Freely adjustable end positions

Variant C
Angle of traverse $\alpha = 180°$ with intermediate position at $\alpha_3 = 90°$

Swivel module	Type	OSE-B 57-8	OSE-B 57/2-8	OSE-C 57-8
	Id.-No.	354 610	354 710	354 620
Swivel module incl. elec. feed-through EDF	Type	OSE-EDF-B 57-8	OSE-EDF-B 57/2-8	OSE-EDF-C 57-8
	Id.-No.	356 610	356 710	356 620
Swivel angle		0 – 180°	0 – 180°	0 – 90 – 180°
Number of feed-throughs		8	8	8
Torque at 6 bar [87 psi]	Nm [lbf·ft]	36 [26.56]	72 [53.12]	36 [26.56]
Axial bearing load	N [lbf]	9000 [2023.29]	9000 [2023.29]	9000 [2023.29]
Radial bearing load	Nm [lbf·ft]	340 [250.84]	340 [250.84]	340 [250.84]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	384 [23.43]	768 [46.86]	384 [23.43]
Cycle time (1 x 180° without load)		0.9 s	0.9 s	0.9 s
Mass	kg [lbs]	13.2/14.0 [29.1/30.86]	12.6/13.4 [27.78/29.54]	13.3/14.1 [29.32/31.08]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	1444 [493.43]	1057 [361.19]	1444 [493.43]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 57

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	301 508 altern. 301 408

* S = closer

System modules and further accessories for OSE

Gripper
For combinable grippers, see the chapter on "Grippers".

Linear units
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Special solutions
We can quickly supply cost-effective custom solutions, customized fingers, attachment plates and complete units to suit your specialized requirements.

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Note

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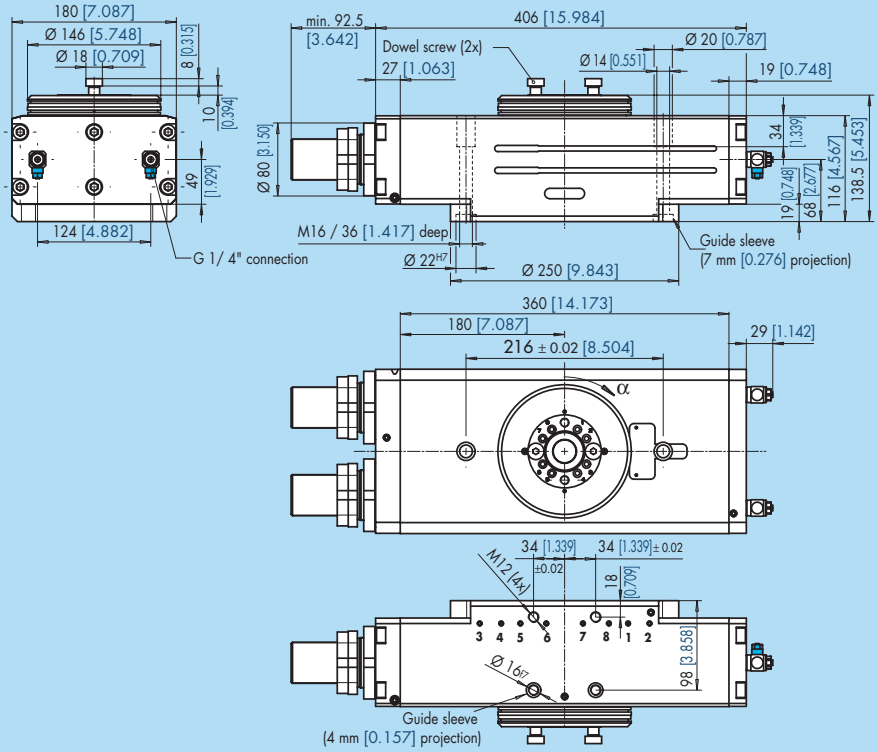
OSE 63

Variant A

Angle of traverse α = 180° or α = 90° End positions adjustable ± 2°

● = Air connection



Angle of rotation definition

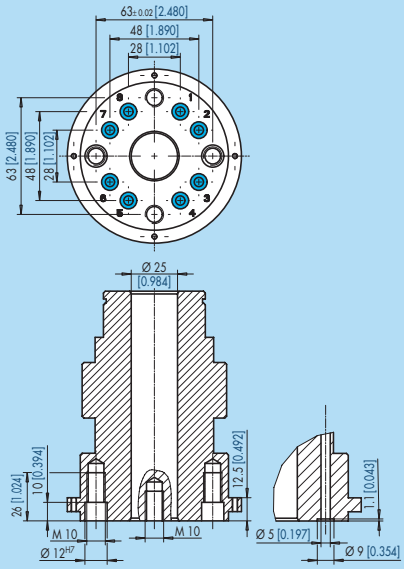
$\alpha_1 = 0° \pm 2°$
$\alpha_2 = 180° \pm 2°$ or $\alpha_2 = 90° \pm 2°$

α_1: Starting angle
α_2: End angle
$\alpha = \alpha_2 - \alpha_1$ = Angle of traverse

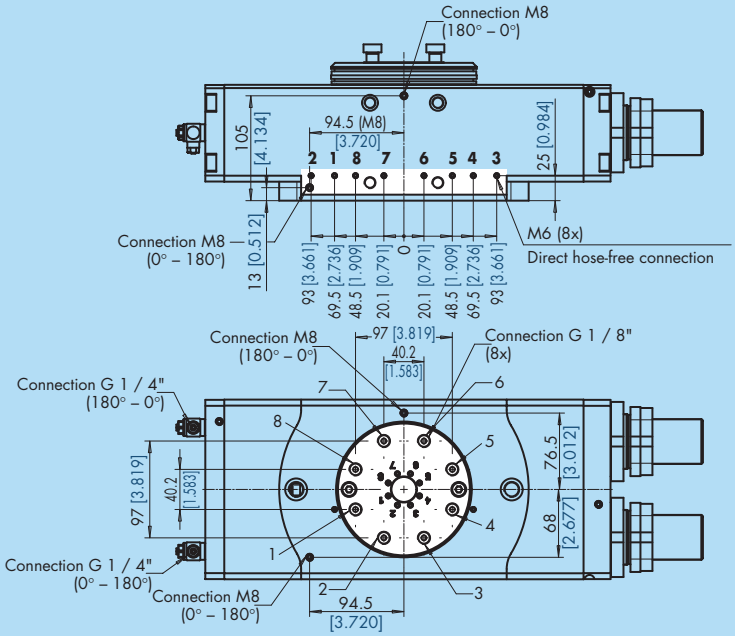
Pinion screw diagram

with air feed-through (8x)

Pinion

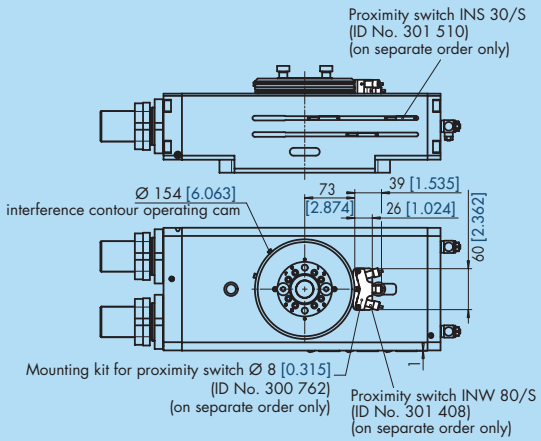


Connection to dome



OSE 63

Attachment of proximity switches



Variant A

Angle of traverse $\alpha = 180°$ or $\alpha = 90°$ End positions adjustable ± 2°

Swivel module	Type	OSE-A 63/20	OSE-A 63/2-4	OSE-A 63/2-0
	Id.-No.	354 800	354 844	354 850
Swivel angle		**0 – 180°**	**0 – 90° left**	**0 – 90° right**
Number of feed-throughs		**8**	**8**	**8**
Torque at 6 bar [87 psi]	Nm [lbf·ft]	115 [84.84]	115 [84.84]	115 [84.84]
Axial bearing load	N [lbf]	11000 [2472.91]	11000 [2472.91]	11000 [2472.91]
Radial bearing load	Nm [lbf·ft]	950 [700.89]	950 [700.89]	950 [700.89]
Air consumption per cycle (2 x 180°)	cm^3 [$inch^3$]	1410 [86.04]	1410 [86.04]	1410 [86.04]
Cycle time (1 x 180° without load)		0.8 s	0.8 s	0.8 s
Mass	kg [lbs]	26.5 [58.42]	26.5 [58.42]	26.5 [58.42]
Own mass moment of inertia I_y	kg cm^2 [lb·$inch^2$]	6140 [2098.12]	6140 [2098.12]	6140 [2098.12]
Repeat accuracy *		0.07° **	0.07° **	0.07° **

* Spread of end positions within 100 consecutive swivel cycles
** corresponds to 0.03 mm [0.001 inch] at r = 25 mm [0.984 inch]

Accessories OSE 63

Proximity switch
In easy-to-assemble design with LED display. For technical details see the "Accessories" catalog.

Type	Id.-No.
INW 80/S*	**301 508** altern. **301 408**

* S = closer

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