

M/60280/IE ... M/60284/IE, M/60280 /TE ... M/60284/TE MINI-Rotary vane actuators, double acting

- Torque at 6 bar
0,35 ... 9,31 Nm
- Suitable for torques
from 0,15 ... 16,27 Nm
- Modern and compact
design
- Angle of rotation
infinitely adjustable
between 30° to 270°



Technical features

Medium:

Compressed air, filtered,
lubricated or non-lubricated

Operation:

Double acting rotary vane with
buffer

Principle:

.../IE single vane
.../TE double vane

Operating pressure:

2 ... 7 bar (29 ... 101 psi)
M/60281/IE, M/60282/IE
2 ... 10 bar (29 ... 145 psi)
M/60283/IE, M/60284/IE, .../TE

Air connections:

M5 – M/60281/IE, M/60282/IE,
M/60283/IE
G1/8 – M/60284/IE, .../TE

Rotation angle:

180° (30 ... 180° adjustable)
M/60281/IE, M/60282/IE,
M/60283/IE
270° (30 ... 270° adjustable)
M/60284/IE
90° (30 ... 90° adjustable)
M/60284/TE

Rotation tolerance:

-9° ... +6° – M/60281/IE,
M/60282/IE, M/60283/IE
-9° ... +3° – M/60284/IE, .../TE
(fine adjustment, range and
maximum angle setting)
±3° (fine adjustment, rotation
reference point)

Operating temperature:

-5°C ... 60°C (+23 ... +140°F)
Air supply must be dry enough
to avoid ice formation at
temperatures below +2°C (+35°F)

Materials:

Housing: aluminium
Shaft: steel
Shaft bearings: sintered bronze,
Seals: NBR

Other features:

Featherkeys supplied
as standard parts

Technical data, standard

Port size	Theoretical torque at 6 bar (Nm)	Permissible forces *1)		Permissible rotation energy *2) (Nm)	Maximum frequency *3) (l/m)	Air consumption (cm3)	Weight (kg)	Model
		axial (N)	radial (N)					
M5	0,38	4	40	1,0 x 10 ⁻³	180 (at 180°)	4	0,09	M/60281/IE
M5	1,2	4	50	2,0 x 10 ⁻³	150 (at 180°)	12	0,17	M/60282/IE
M5	2,1	25	300	3,0 x 10 ⁻³	120 (at 180°)	21	0,28	M/60283/IE
G 1/8	4,1	30	400	7,0 x 10 ⁻³	60 (at 270°)	43	0,51	M/60284/IE
G 1/8	9,5	30	400	7,0 x 10 ⁻³	180 (at 90°)	34	0,53	M/60284/TE

*1) Permissible load on rotary vane shaft

*2) Permissible rotational energy in Nm which may be applied to shaft. It can be calculated as follows: Permissible rotational energy $\geq 1/2 I \cdot \omega^2$, I=Angular moment, ω = Mean angular velocity

*3) Maximum frequency at 5 bar pressure, no load

Mini rotary vane actuators models with fixed or adjustable rotation angles

Rotation angle	Double vane		Single vane	Model
	90°	180°		
•			•*1)	M/60281/IE
•			•*1)	M/60282/IE
•			•*1)	M/60283/IE
•			•*2)	M/60284/IE
•		•*3)		M/60284/TE

*1) Adjustable from 30° ... 180°

*2) Adjustable from 30° ... 270°

*3) Adjustable from 30° ... 90°

Option selector

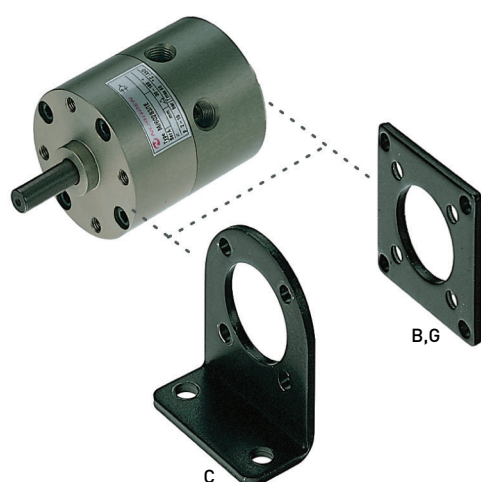
Size
1, 2, 3, 4

M/6028★/★/★/★

Rotation	Substitute
Standard only	see table
Variants	Substitute
Single vane, adjustable	IE
Double vane, adjustable	TE

Note: Disregard option positions not used

Mountings



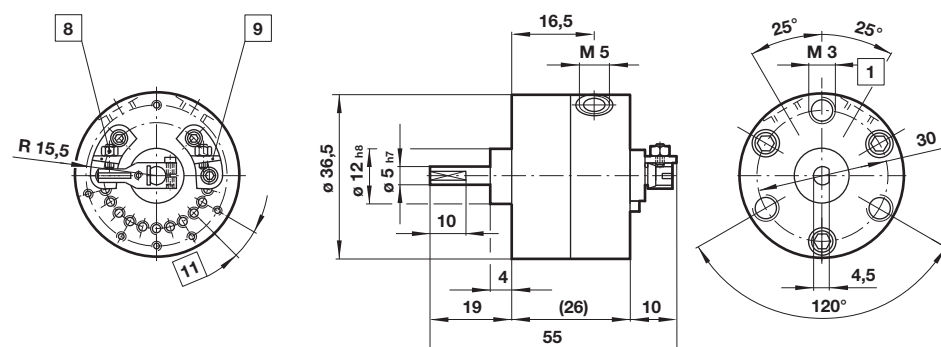
Model	B, G	C
		
	Page 6	Page 6
M/60281/IE	QM/60281/22	QM/60281/21
M/60282/IE	QM/60282/22	QM/60282/21
M/60283/IE	QM/60283/22	QM/60283/21
M/60284/IE, .../TE	QM/60284/22	QM/60284/21

Dimensions

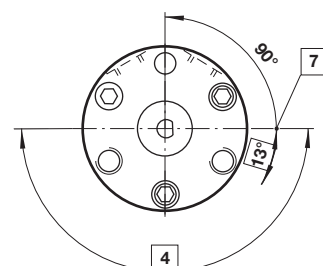
Dimensions in mm
Projection/First angle



M/60281/IE

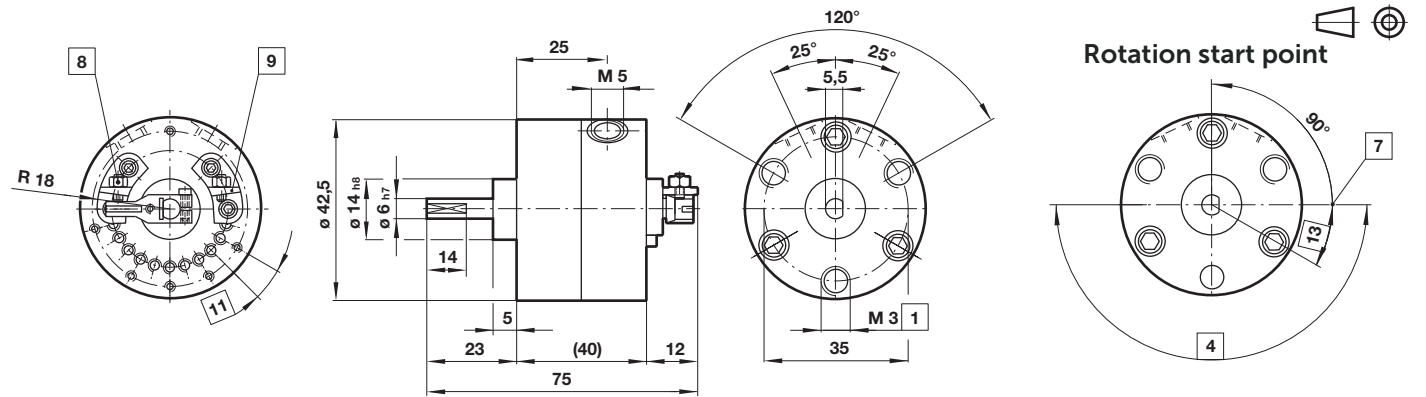


Rotation start point

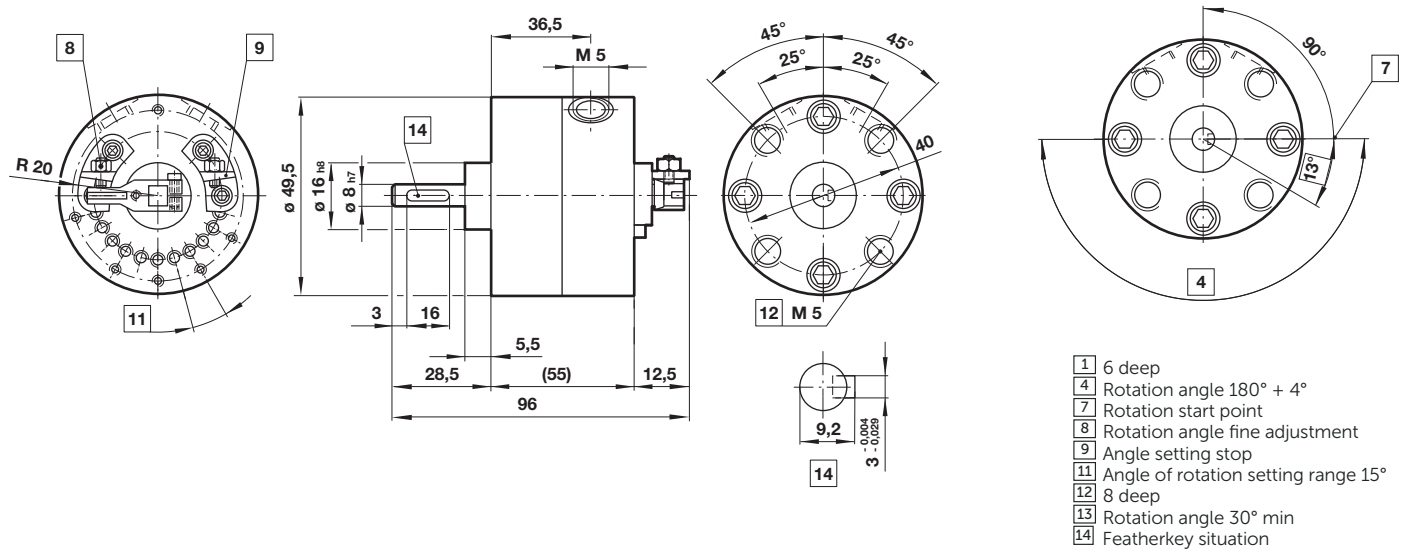


- 1 6 deep
- 4 Rotation angle 180° + 4°
- 7 Rotation start point
- 8 Rotation angle fine adjustment
- 9 Angle setting stop
- 11 Angle of rotation setting range 15°

M/60282/IE

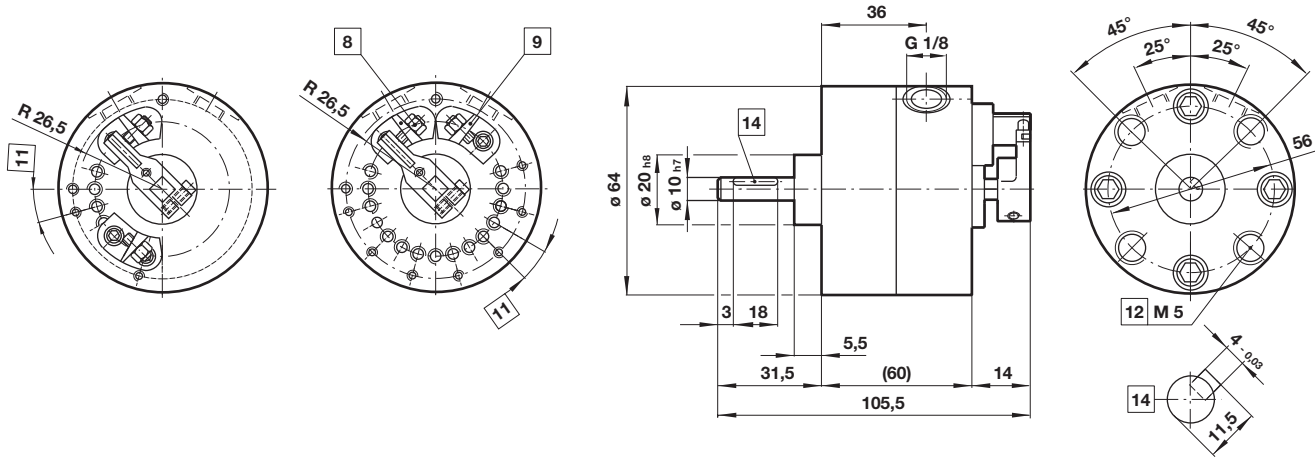


M/60283/IE

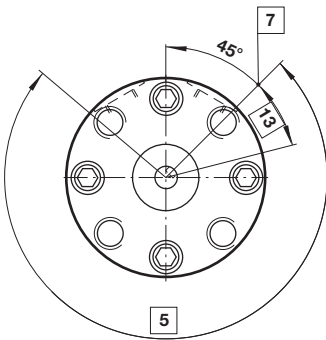


Dimensions
M/60284/IE and M/60284/TE

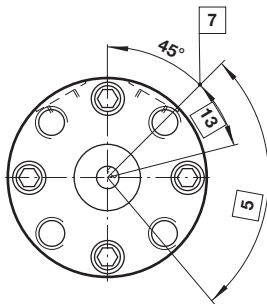
Dimensions in mm
Projection/First angle



Rotation start point
M/60284/IE



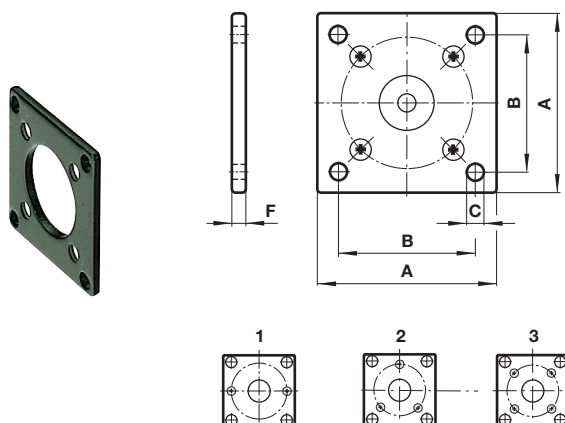
M/60284/TE



- 1 6 deep
- 4 Rotation angle 180° + 4°
- 7 Rotation start point
- 8 Rotation angle fine adjustment
- 9 Angle setting stop
- 11 Angle of rotation setting range 15°
- 12 8 deep
- 13 Rotation angle 30° min
- 14 Featherkey situation

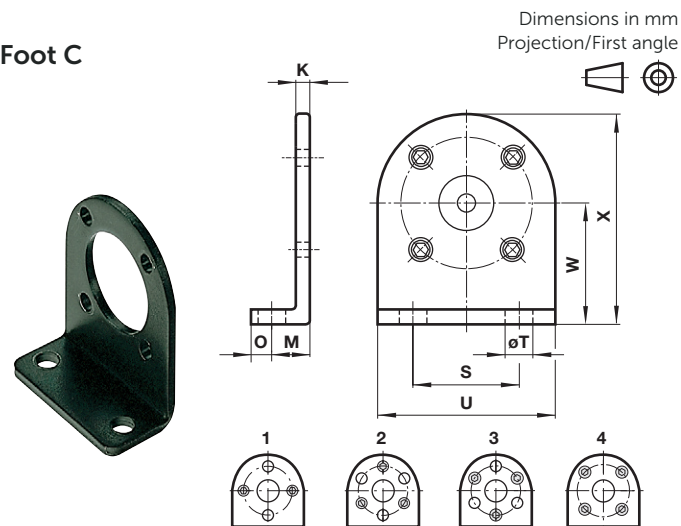
Mountings

Rear flange B, Front flange G



A	B	Ø C	F	Hole pattern	Rotation angle	kg	Model
37	30	3,4	2,5	2	120°	0,07	QM/60281/22
42	34	3,5	3	2	120°	0,14	QM/60282/22
50	41	5,5	3,5	3	90°	0,36	QM/60283/22
64	52	5,5	3,5	3	90°	0,47	QM/60284/22

Foot C



K	M	O	S	Ø T	U	W	X	Hole pattern	Rotation angle	kg	Model
2,5	11	7	26	4,8	36	25	43	2	60°	0,05	QM/60281/21
3	12	8	30	5,8	42	30	51	3	60°	0,09	QM/60282/21
3,5	15	10	36	7	49	34	58,5	4	90°	0,2	QM/60283/21
4,5	18	12	48	6,5	66	42	75	4	90°	0,2	QM/60284/21

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under »Technical features/ data«.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.