

Modern compact design

Angle of rotation from 90° to 270°

Suitable for torques from 0,059 to 16,6 Nm



Technical data

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Double acting rotary vane with buffer cushioning

M/60280 to M/60284 single vane

M/60281/TI to M/60284/TI double vane

Operating pressure:

2 to 7 bar M/60280, M/60281, .../TI, M/60282, .../TI

2 to 10 bar M/60283, .../TI, M/60284, .../TI

Operating temperature:

-5°C to 60°C

(consult our Technical Service for use below +2°C)

Air connections:

M 5 M/60280, .../TI, M/60281, .../TI

M/60282, .../TI, M/60283, .../TI

G 1/8 M/60284, .../TI

Rotation angle:

90°, 180° M/60280

90°, 180°, 270° M/60281 to M/60284

90° M/60281/TI to M/60284/TI

Rotation tolerance:

0 to +4° M/60280 bis M/60283, .../TI

0 to +3° M/60284, M/60284/TI

Other features:

Featherkey supplied as standard for
M/60283/IE, M/60284/IE

Materials:

Body: cast aluminium

Shaft: steel

Shaft bearing: sintered bronze

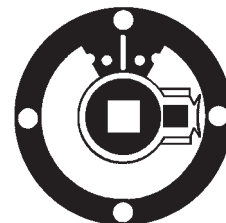
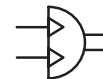
Seals: nitrile rubber

Ordering informations

See page 2

Mountings

See page 2

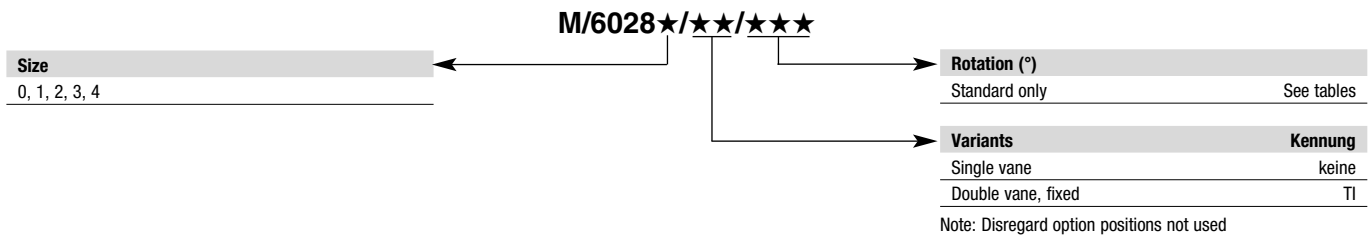


Standard models

Mini rotary vane actuators models with fixed or adjustable rotation angles

Model	Single vane	Double vane	Rotation angle		
			90°	180°	270°
M/60280	•		•	•	
M/60281	•		•	•	•
M/60281/TI		•	•		
M/60282	•		•	•	•
M/60282/TI		•	•		
M/60283	•		•	•	•
M/60283/TI		•	•		
M/60284	•		•	•	•
M/60284/TI		•	•		

Options selector



Ordering information

To order a MINI-Rotary vane actuator with a torque up to 0,9 Nm at 6 bar and a 180° rotation quote: **M/60282/180**

To order a MINI-Rotary vane actuator with a torque up to 9 Nm at 6 bar, and a 90° rotation quote: **M/60284/TI/90**

End position detection available on request

Mountings

Ø	B & G	C
	see Page 7	see Page 7
M/60280	QM/60280/22	QM/60280/21
M/60281, .../TI	QM/60281/22	QM/60281/21
M/60282, .../TI	QM/60282/22	QM/60282/21
M/60283, .../TI	QM/60283/22	QM/60283/21
M/60284, .../TI	QM/60284/22	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 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.

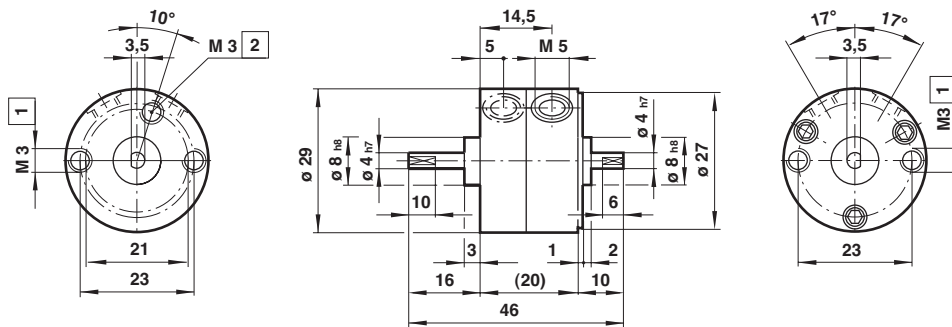
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

Theoretical forces, air consumption, Actuators weight (kg)

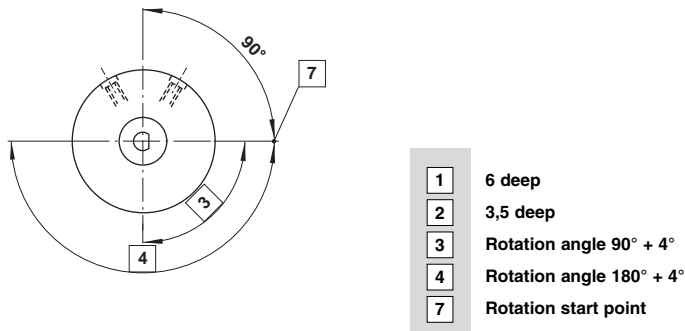
Model	Theoretical torque at 6 bar (Nm)	Permissible forces ¹⁾ axial (N)	radial (N)	Permissible rotation energy ²⁾ (Nm)	Maximum frequency ³⁾ (1/min)	Air consumption (cm ³)			Weight (kg)
						90°	180°	270°	
M/60280	0,15	3	30	0,6 x 10 ⁻³	180 (at 180°)	1,4	1,4	-	0,04
M/60281	0,38	4	40	1,5 x 10 ⁻³	150 (at 180°)	3,4	3,4	4	0,07
M/60281/TI	0,86	4	40	1,5 x 10 ⁻³	240 (at 90°)	2,8	-	-	0,08
M/60282	1,20	4	50	3,0 x 10 ⁻³	150 (at 180°)	9,8	9,8	12	0,14
M/60282/TI	2,54	4	50	3,0 x 10 ⁻³	240 (at 90°)	8,1	-	-	0,14
M/60283	2,10	25	300	15,0 x 10 ⁻³	120 (at 180°)	17	17	21	0,25
M/60283/TI	4,70	25	300	15,0 x 10 ⁻³	180 (at 90°)	15	-	-	0,26
M/60284	4,10	30	400	25,0 x 10 ⁻³	90 (at 180°)	37	37	43	0,47
M/60284/TI	9,50	30	400	25,0 x 10 ⁻³	180 (at 90°)	34	-	-	0,48

- 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 $\geq 1/2 I \omega^2$ (I=Angular moment, ω =Mean angular velocity)
- 3) Maximum frequency at 5 bar with unloaded operating pressure

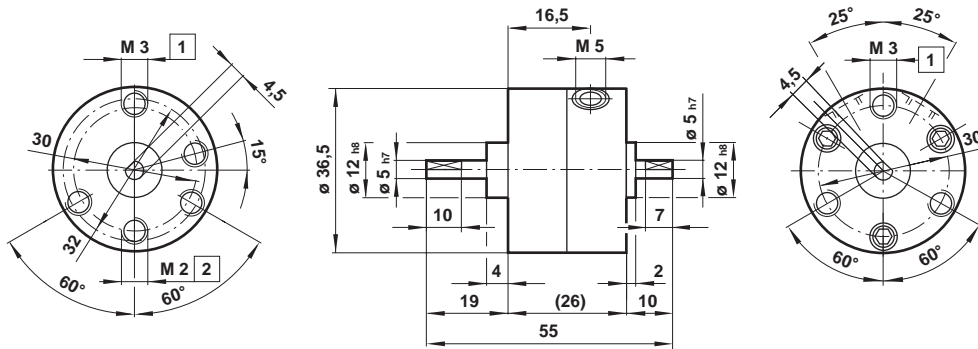
Dimensions M/60280



Rotation start point



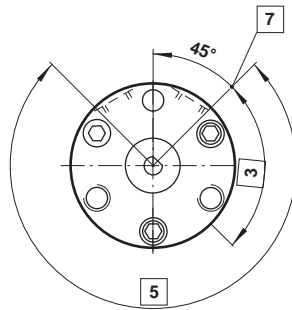
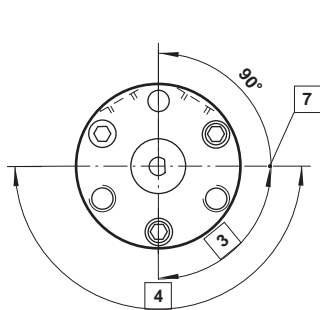
Dimensions M/60281



Rotation start point

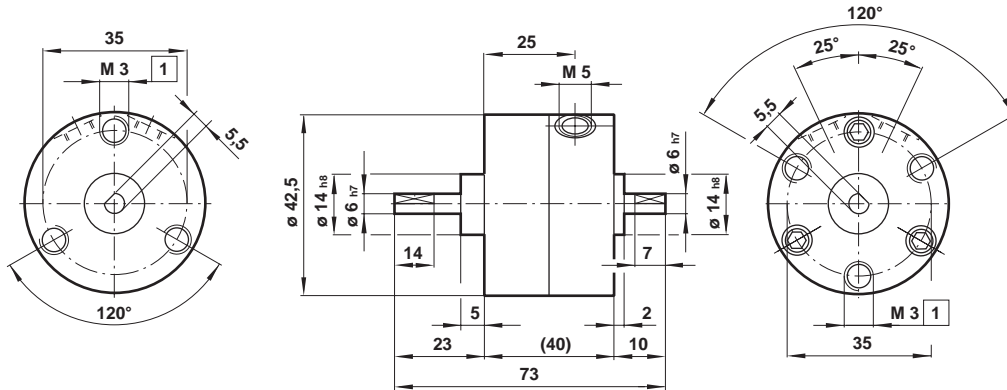
M/60281/90, M/60281/180

M/60281/270, M/60281/TI



- | | |
|---|--------------------------|
| 1 | 6 deep |
| 2 | 3 deep |
| 3 | Rotation angle 90° + 4° |
| 4 | Rotation angle 180° + 4° |
| 5 | Rotation angle 270° + 4° |
| 7 | Rotation start point |

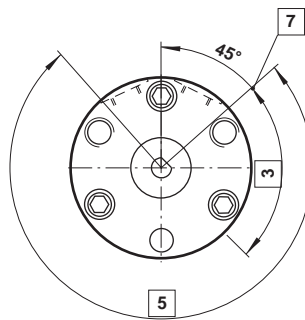
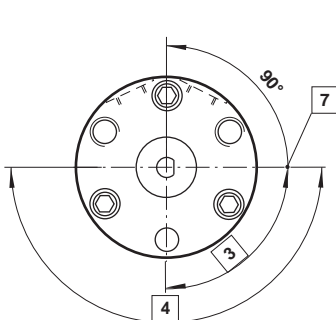
Dimensions M/60282



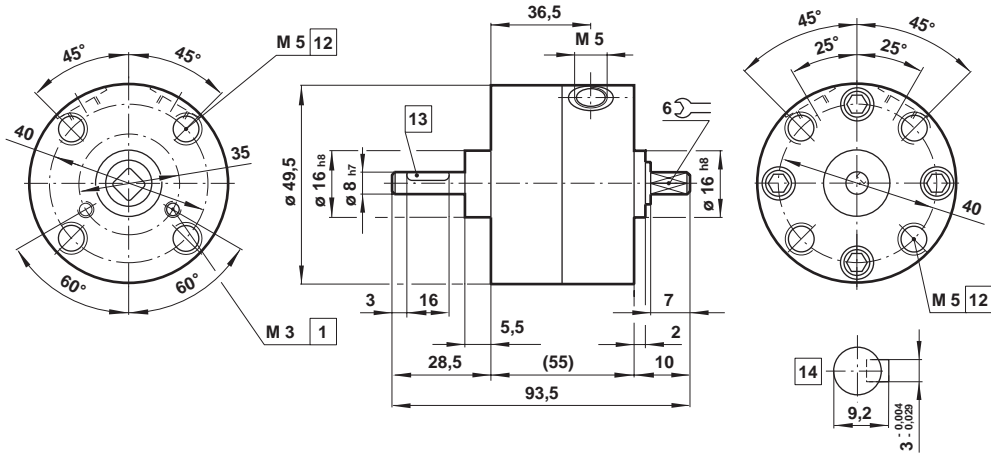
Rotation start point

M/60282/90, M/60282/180

M/60282/270, M/60282/TI



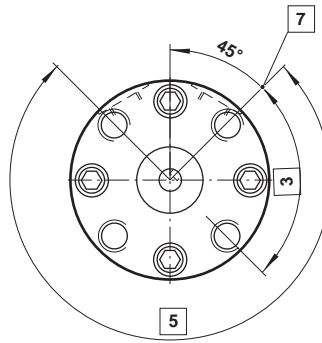
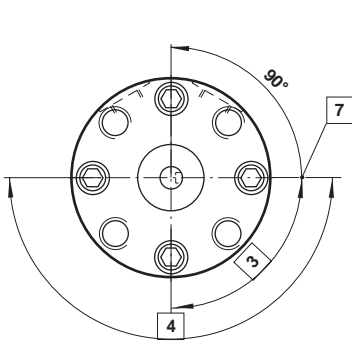
Dimensions M/60283



Rotation start point

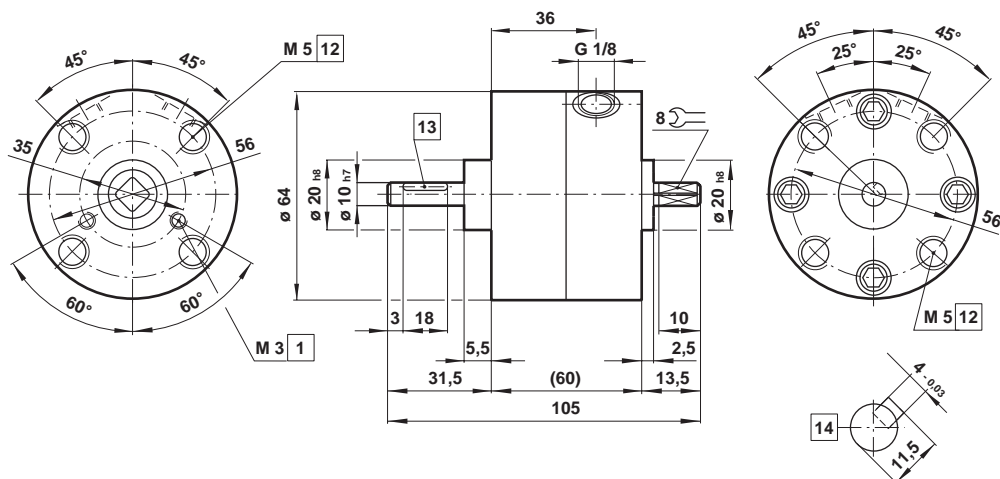
M/60283/90, M/60283/180

M/60283/270, M/60283/TI



- | | |
|----|--------------------------|
| 1 | 6 deep |
| 3 | Rotation angle 90° + 4° |
| 4 | Rotation angle 180° + 4° |
| 5 | Rotation angle 270° + 4° |
| 7 | Rotation start point |
| 12 | 8 deep |
| 13 | Featherkey |
| 14 | Featherkey situation |

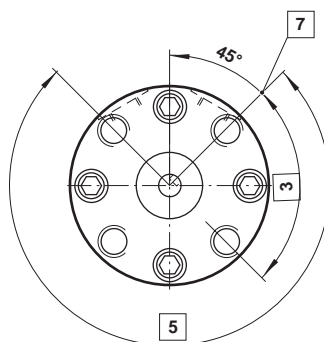
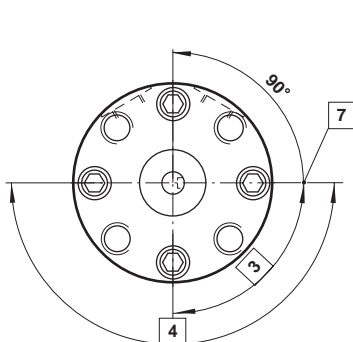
Dimensions M/60284



Rotation start point

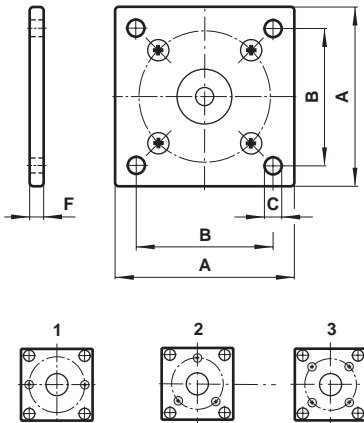
M/60284/90, M/60284/180

M/60284/270, M/60284/TI

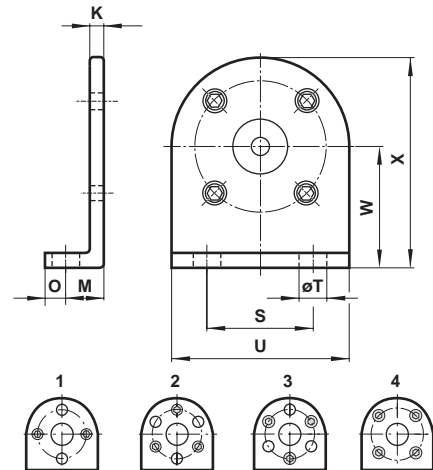


1	6 deep
3	Rotation angle 90° + 4°
4	Rotation angle 180° + 4°
5	Rotation angle 270° + 4°
7	Rotation start point
12	8 deep
13	Featherkey
14	Featherkey situation

Rear flange B, front flange G



Foot C

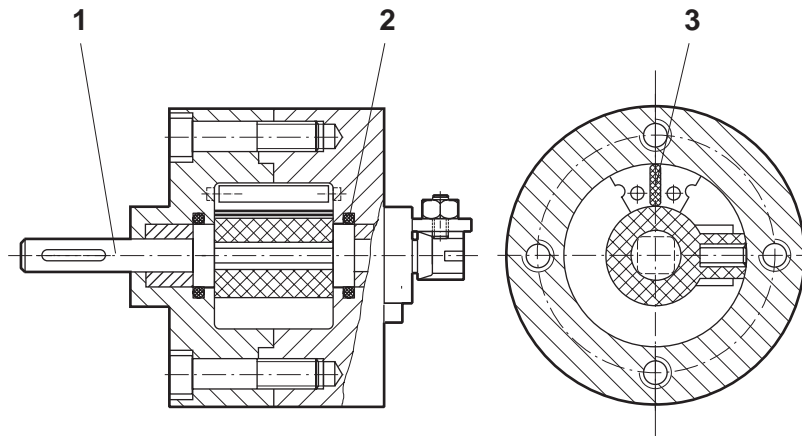


Model	A	B	Ø C	F	Hole pattern	Rotation angle	kg
QM/60280/22	30	24	3,4	2	1	180°	0,04
QM/60281/22	37	30	3,4	2,5	2	120°	0,07
QM/60282/22	42	34	3,5	3,0	2	120°	0,14
QM/60283/22	50	41	5,5	3,5	3	90°	0,36
QM/60284/22	64	52	5,5	3,5	3	90°	0,47

Model	K	M	O	S	Ø T	U	W	X	Hole pattern	Rotation angle	kg
QM/60280/21	2	10	5	20	4,8	30	22	37	1	90°	0,04
QM/60281/21	2,5	11	7	26	4,8	36	25	43	2	60°	0,05
QM/60282/21	3,0	12	8	30	5,8	42	30	51	3	60°	0,09
QM/60283/21	3,5	15	10	36	7	49	34	58,5	4	90°	0,20
QM/60284/21	4,5	18	12	48	6,5	66	42	75	4	90°	0,20

1) The mountings can be rotated through the angle shown.

Spares



Model	Spares kit
M/60280	QM/60280/00
M/60281	QM/60281/00
M/60281/TI	QM/60281/TI/00
M/60282	QM/60282/00
M/60282/TI	QM/60282/TI/00
M/60283	QM/60283/00
M/60283/TI	QM/60283/TI/00
M/60284	QM/60284/00
M/60284I	QM/60284/TI/00

Comprising Item	Description	Quantity
1	Shaft with vane	1
2	O-ring	2
3	Seal	1 (2)

() for .../TI