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

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)	Permissable forces *1) axial (N)	radial (N)	Permissable rotation energy *2) (Nm)	Maximum frequency *3) (l/m)	Air consumtion (cm^3)	Weight (kg)	Model
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) Permissable 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 ≥1/2 IXX2, I=Angular moment, XX= 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 90°	180°	270°	Double vane	Single vane	Model
•			•*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

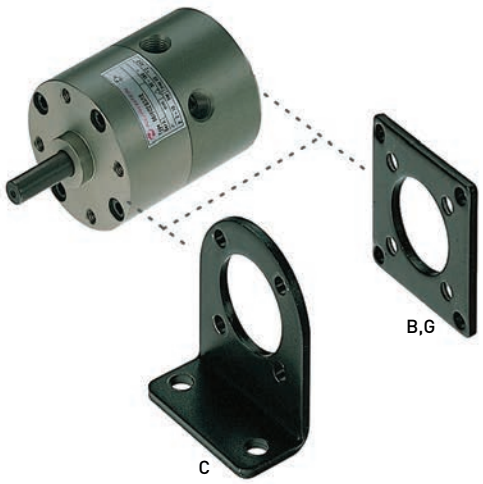
M/6028★/★★/★★★

Size
1, 2, 3, 4

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

Note: Disregard option positions not used

Mountings

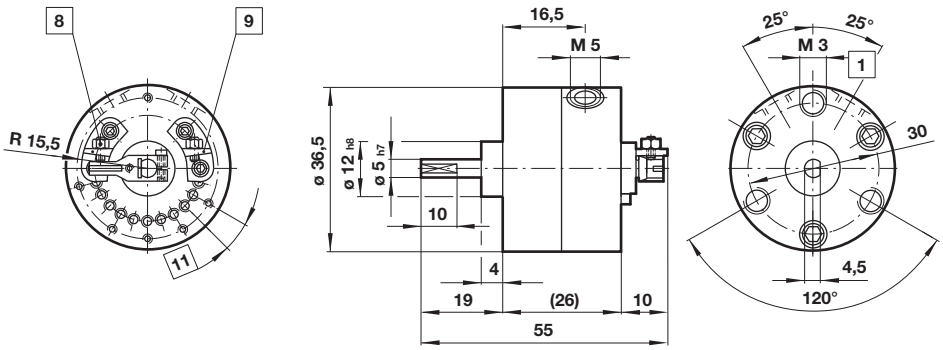


Model	B, G	C
		
	Page 6	Page 6
M/60281/IE	QM/60281/22	QM/60281/21
M/60282/IE	QM/60282/22	QM/60282/21
M/60283/IE	QM/60283/22	QM/60283/21
M/60284/IE, .../TE	QM/60284/22	QM/60284/21

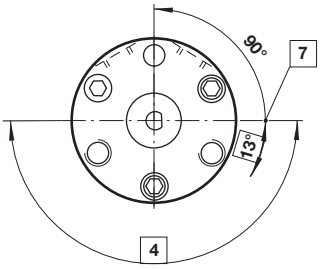
Dimensions

Dimensions in mm
Projection/First angle

M/60281/IE



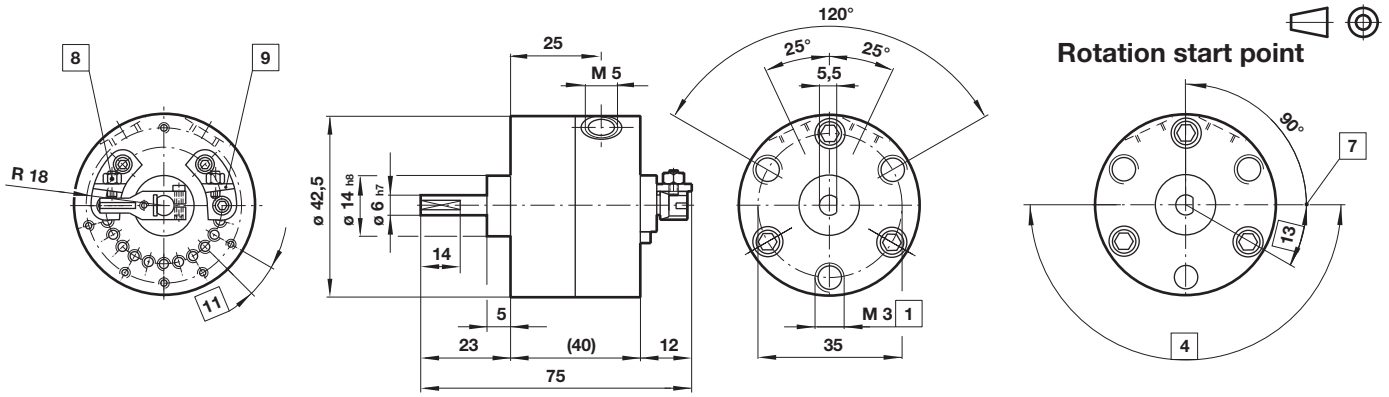
Rotation start point



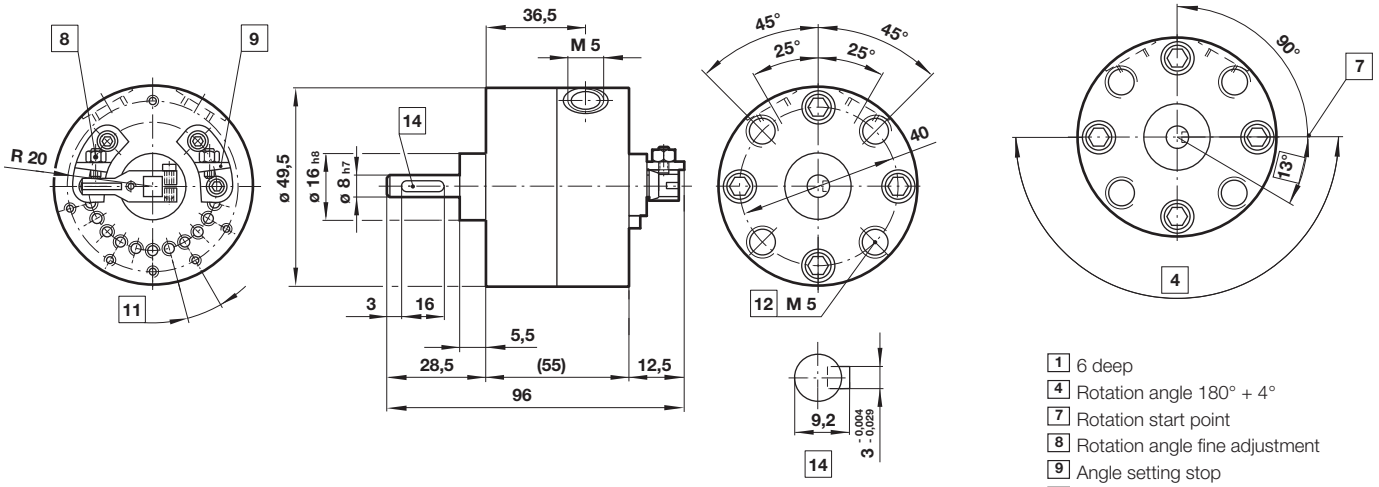
1 6 deep
4 Rotation angle 180° + 4°
7 Rotation start point
8 Rotation angle fine adjustment
9 Angle setting stop
11 Angle of rotation setting range 15°

M/60282/IE

Dimensions in mm
Projection/First angle



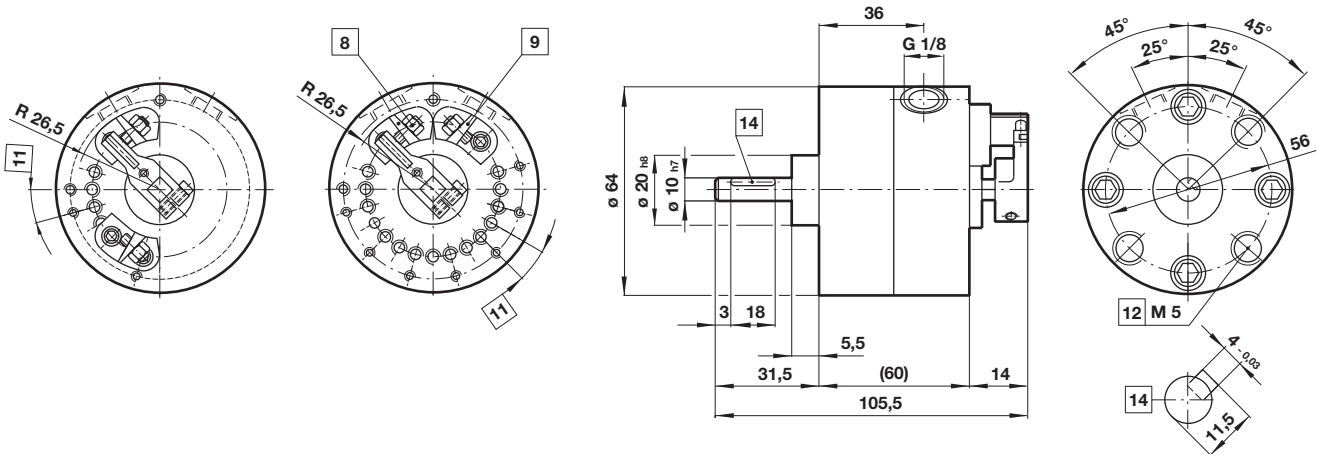
M/60283/IE



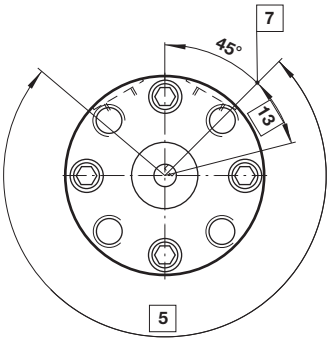
1 6 deep
4 Rotation angle 180° + 4°
7 Rotation start point
8 Rotation angle fine adjustment
9 Angle setting stop
11 Angle of rotation setting range 15°
12 8 deep
13 Rotation angle 30° min
14 Featherkey situation

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

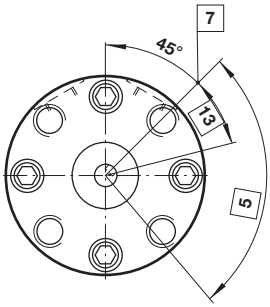
Dimensions in mm
Projection/First angle



Rotation start point
M/60284/IE

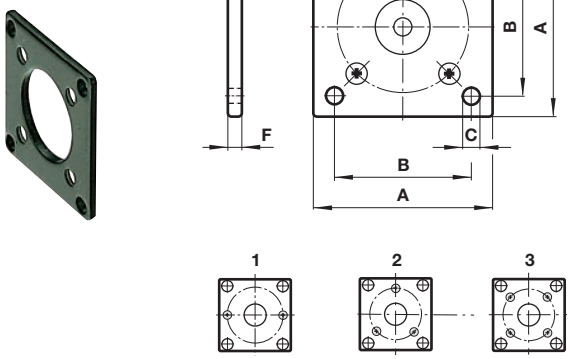


M/60284/TE



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

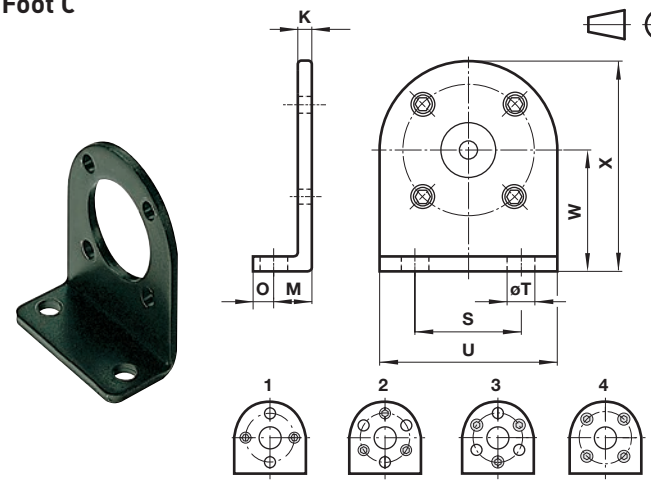
Mountings
Rear flange B, Front flange G



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

Dimensions in mm
Projection/First angle



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 IMI 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.