

**MINI Rotary Vane Actuators
Double Acting
0,35 to 9,31 Nm
Torque at 6 bar**

- Suitable for torques from 0,15 to 16,27 Nm
- Angle of rotation infinitely adjustable between 30° to 270°
- Modern compact design



Technical Data

Medium:

Compressed air, filtered, lubricated and non-lubricated

Operation:

Double acting rotary vane with buffer cushioning and adjustable rotation angles

.../IE single vane

.../TE double vane

Operating Pressure:

3 to 7 bar M/60281/IE

2 to 7 bar M/60282/IE

2 to 10 bar M/60283/IE, M/60284/IE, M/60284/TE

Operating Temperature:

+5°C to +60°C

Air Connection:

M 5 M/60281/IE, M/60282/IE

G 1/8 M/60283/IE, M/60284/IE, M/60284/TE

Rotation Angle:

180° (30 to 180° adjustable) M/60281/IE, M/60282/IE, M/60283/IE

270° (30 to 270° adjustable) M/60284/IE

90° (30 to 90° adjustable) M/60284/TE

Rotation Angle Tolerance (fine adjustment):

-9° to +3° range and maximum angle setting

±3° rotation reference point

Other Features:

Featherkeys supplied as standard parts

Materials:

Cast aluminium housing, steel shaft, sintered bronze shaft bearings, nitrile rubber seals.

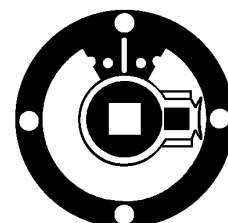
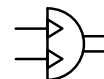
Ordering Information

To order a Rotary Vane Actuator with torque up to 0,9 Nm at 6 bar and a 180° rotation quote: M/60282/IE

To order a Rotary Vane Actuator with torque up to 9 Nm at 6 bar and a 270° rotation quote: M/60284/TE

To order mounting brackets refer to appropriate actuator mounting table.

End position detection available on request





Theoretical Torques • Forces • Air Consumption • Rotation • Weights of Actuator and Mountings (kg)

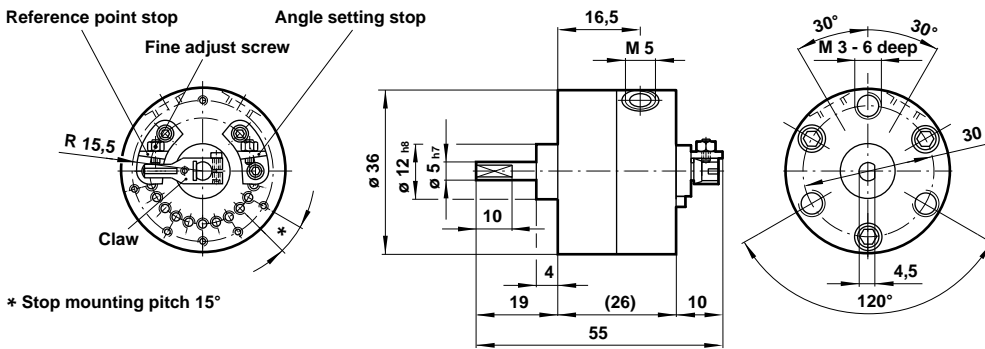
Model	Theoretical torques at 6 bar (Nm)	Permissible forces*		Permissible rotation energy** (Nm)	Maximum frequency*** (1/min)	Air consumption (cm ³)	Weight (kg)	Style	
		axial (N)	radial (N)					'G'	'C'
M/60281/IE	0,35	3,92	39,2	$0,98 \times 10^{-3}$	160 (at 180°)	2,6	0,09	0,02	0,04
M/60282/IE	1,04	3,92	49	$1,96 \times 10^{-3}$	150 (at 180°)	8,5	0,17	0,03	0,05
M/60283/IE	1,91	24,5	294	$2,94 \times 10^{-3}$	120 (at 180°)	16	0,39	0,05	0,09
M/60284/IE	4,02	29,4	392	$6,86 \times 10^{-3}$	70 (at 270°)	43	0,51	0,10	0,20
M/60284/TE	9,31	29,4	392	$6,86 \times 10^{-3}$	200 (at 90°)	34	0,53	0,10	0,20

* Permissible load on rotary vane shaft

** 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

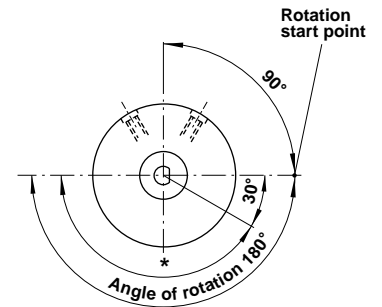
*** Maximum frequency at 5 bar pressure, no load.

Basic Dimensions M/60281/IE



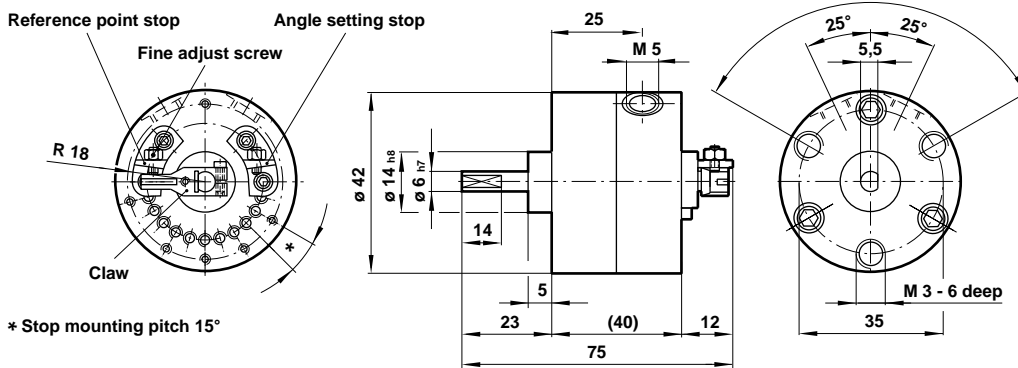
* Stop mounting pitch 15°

Rotation Start Point



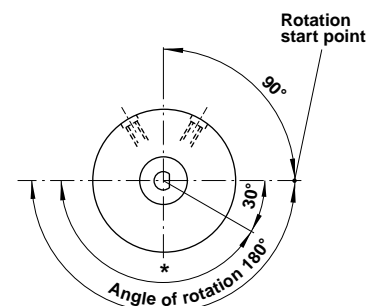
* Angle of rotation setting range 150°

Basic Dimensions M/60282/IE



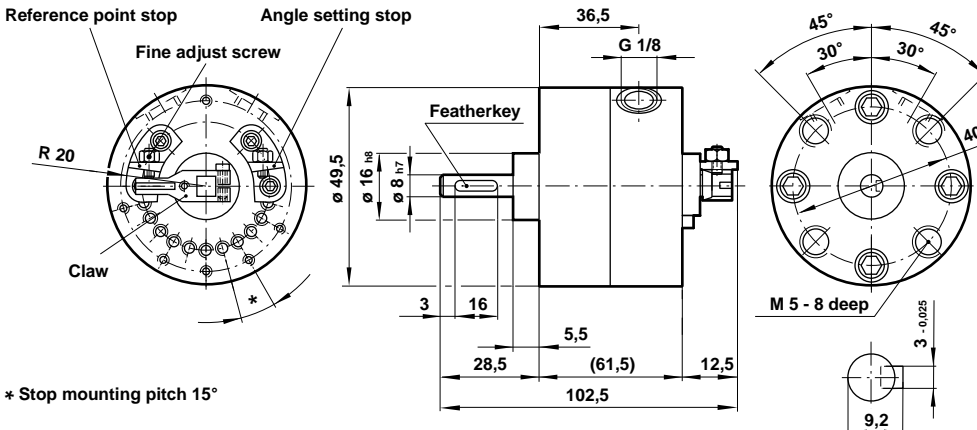
* Stop mounting pitch 15°

Rotation Start Point



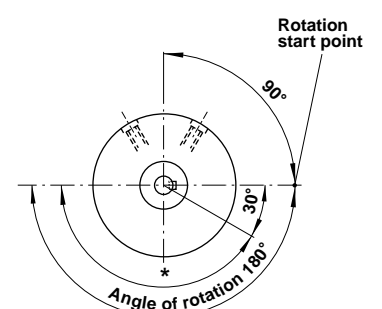
* Angle of rotation setting range 150°

Basic Dimensions M/60283/IE



* Stop mounting pitch 15°

Rotation Start Point

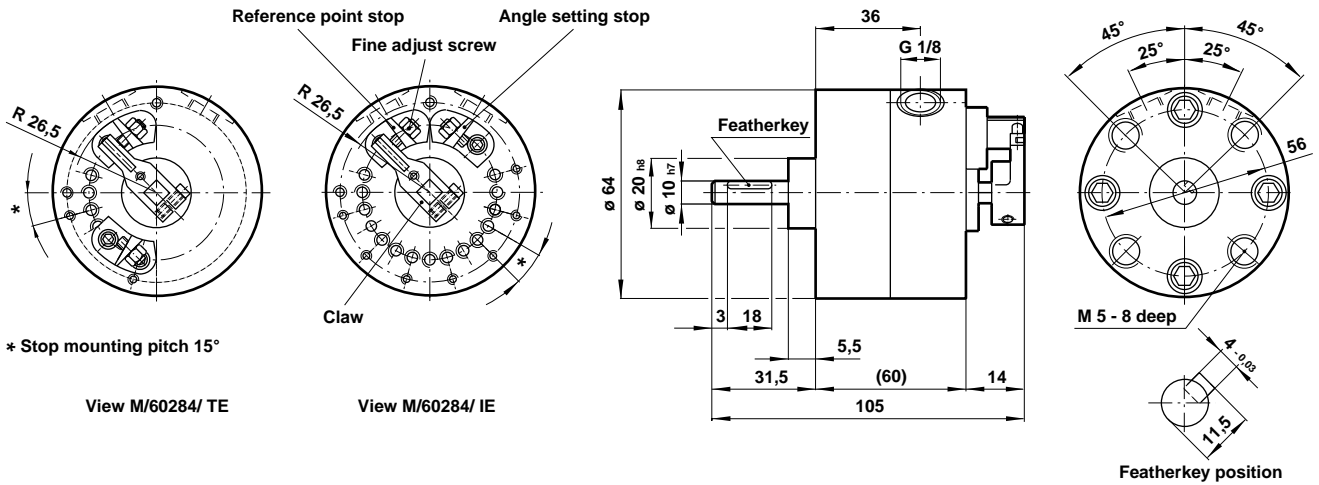


* Angle of rotation setting range 150°

Featherkey position

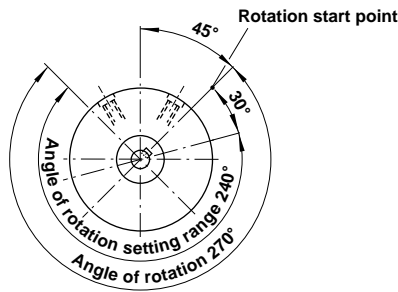


Basic Dimensions M/60284/IE and M/60284/TE

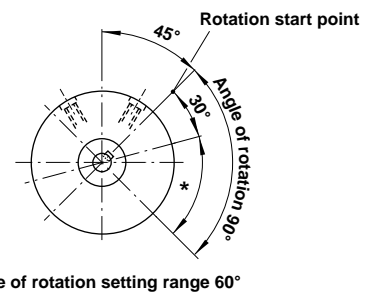


Rotation Start Point

M/60284/IE

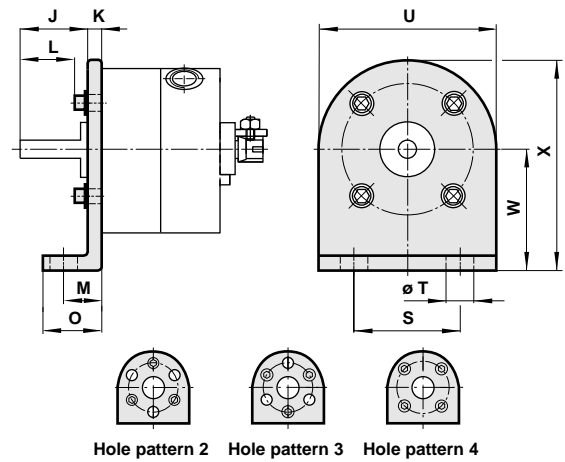
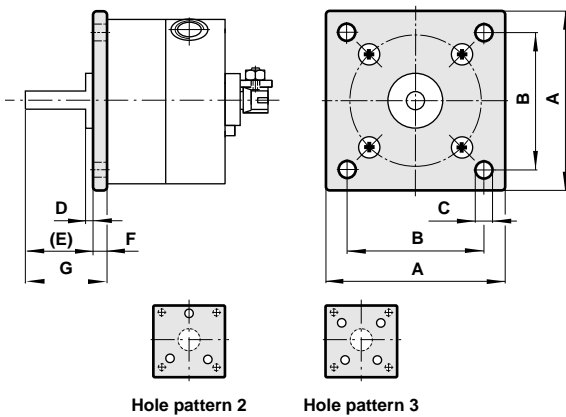


M/60284/TE



Front Flange Mounting Style 'G'

Foot Mounting Style 'C'

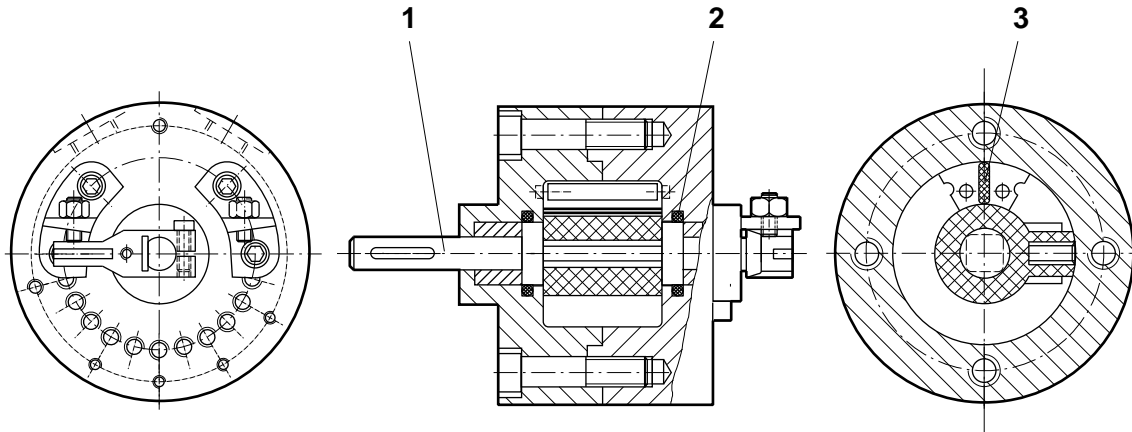


Model 'G'	QM/60281/22	QM/60282/22	QM/60283/22	QM/60284/22	Model 'C'	QM/60281/21	QM/60282/21	QM/60283/21	QM/60284/21
Actuator	60281	60282	60283	60284	Actuator	60281	60282	60283	60284
A	37	42	50	64	J	16,5	20	25	27
B	30	34	41	52	K	2,5	3	3,5	4,5
∅ C	3,4	3,5	5,5	5,5	L	12,5	16	18,5	20,5
D	1,5	2	2	2	M	11	12	15	18
E	16,5	20	25	28	O	18	20	25	30
F	2,5	3	3,5	3,5	S	26	30	36	48
G	19	23	28,5	31,5	∅ T	4,8	5,8	7	6,5
Hole pattern	2	2	3	3	U	36	42	49	66
Rotation*	120°	120°	90°	90°	W	25	30	34	42
					X	43	51	58,5	75
					Hole pattern	2	3	4	4
					Rotation*	60°	60°	90°	90°

* The mountings can be rotated through the angle shown.



Spares



Model	Spares kit	Comprising:		
		Item	Description	Quantity
M/60281/IE	QM/60281/00	1	Shaft with vane	1
M/60282/IE	QM/60282/00	2	O-ring	2
M/60283/IE	QM/60283/00	3	Seal	1 (2)
M/60284/IE	QM/60284/00			
M/60284/TE	QM/60284/TV/00			

() for .../TE

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.