



3.1

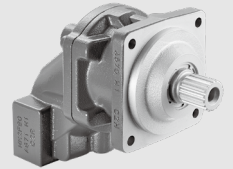
# M60F SERIES

## Bent-axial Piston Fixed Displacement Motor

M60F series bent-axial piston fixed displacement motor is used in an open or closed circuit. The bent-axial structure ensures a larger displacement and a more compact structure under the same volume.

Apply to open or close circuit

Size:	28	56	63	80	90
Nominal pressure (bar):	400	400	400	400	400
Max pressure (bar):	450	450	450	450	450



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## Features

- ◁ Higher pressure and higher speed
- ◁ High activation efficiency
- ◁ Optimized power-weight ratio
- ◁ High torque and long service life
- ◁ Superior performance in low speed operation provides excellent controllability
- ◁ Suitable for engineering machinery and general industrial vehicles

## Technical Data

Feature		28	56	63	80	90
Max. Displacement (cc/rev)		28	56.1	63	79.8	90.5
Direction of rotation		Clockwise, Counter clockwise				
Rotation speed	Rated (rpm)	6300	5000		4500	
	Max. (rpm)	6900	5500		5000	
Rated pressure (bar)		400				
Max. pressure (bar)		450				
Theoretical output torque (N·m)	@ $\Delta P=400$ bar	179	357	401	508	576
Max. Flow (L/min)	@ $n_{nom}$	177	281	315	359	407
Moment of inertia (kg·m <sup>2</sup> )		0.0012	0.0042	0.0042	0.0056	0.0058
Weight (kg)		11.9	18		24.7	
Volume in the case (L)		0.20	0.45		0.65	
Oil viscosity (mm <sup>2</sup> /s)		5 ~ 1600, Best range: 16~36				
Oil temperature (°C)		-25 ~ 103				
Oil cleanliness		ISO 4406 20/18/15				

## Type Introduction

M60F	90	N	W	V	N4	D0	B	N	N	—	A
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩		⑪

### Product series

①	Bent-axial piston fixed displacement motor	M60F
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### Displacement

②	Displacement (cc/rev)	28	56	63	80	90
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### Thread type of ports

③	Thread type of A/B port and T1/T2 port	UNC threads	A
		Metric threads	N

### Direction of rotation

④	Clockwise, Counter clockwise	W
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### Seals

⑤	FKM (Viton rubber: DIN ISO 1629)	V
	NBR (Nitrile rubber: DIN ISO 1629)	N

### Mounting flange

⑥		28	56	63	80	90	Code
	100-4 ISO 3019-2	●					N3
	125-4 ISO 3019-2		●	●			N5
	127-4 SAE J744 (Applicable to 80, 90)				●	●	N6
	127-4 SAE J744		●	●			N7
	140-4 ISO 3019-2				●	●	N4

## Type Introduction

### Input shaft

		28	56	63	80	90	Code
⑦	W30×2×14×9g DIN 5480	●	●				D3
	W35×2×16×9g DIN 5480		●	●			D0
	W40×2×18×9g DIN 5480				●	●	D1
	ANSI B92.1 21T-16/32DP				●	●	D2

### Port position

		28	56	63	80	90	Code
⑧	Bottom	○			●	●	B
	Two sides	●	●	●			A

### Control

⑨	With	S
	Without	N

### Speed sensor

⑩	With	S
	Without	N

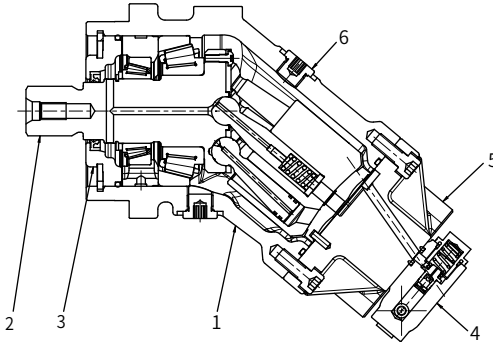
### Standard / special version

Standard version						N	
⑪	Special version	With flush valve	Flushing flow (L/min)	Code	Flushing flow (L/min)	Code	Opening pressure 16bar, differential pressure ΔP=25bar
			3.5	A	20	G	
			5	B	25	H	
			8	C	30	I	
			10	D	35	J	
			14	E	40	K	
			17	F			

Remark: ● = Available; ○ = On request

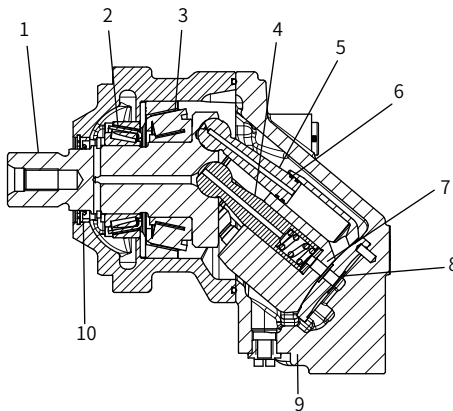
## Section view

### • M60F 28/56/ 63



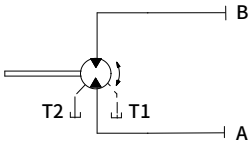
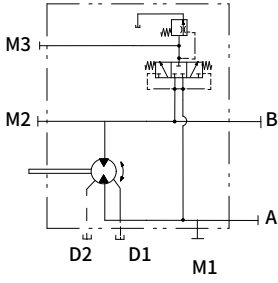
1. Housing
2. Rotating unit
3. Oil seal cover
4. Flush valve
5. Rear cover
6. Hex socket plug

### • M60F 80/90



1. Output shaft
2. Tapered roller bearing (small)
3. Tapered roller bearing (large)
4. Centering journal
5. Piston
6. Sealing ring
7. Cylinder block
8. Valve plate
9. End cap
10. Oil seal

# Principle



03



## Installation size

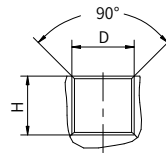
### • M60F 28 Direction of rotation and oil flow direction

Installation	Rotation
Flow A → B	Clockwise
Flow B → A	Counter-clockwise

### • M60F 28 Port details

	Port name	Port size and description	Tightening torque (N·m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	32
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	55

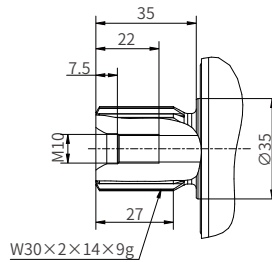
Port	H	D	M
T1	12	∅ 16	M16×1.5
T2	12	∅ 16	M16×1.5



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### • M60F 28 Input shaft type

“D3” type shaft







## Installation size

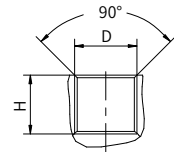
### • M60F 56/63 Direction of rotation and oil flow direction

Installation	Rotation
Flow A → B	Clockwise
Flow B → A	Counter-clockwise

### • M60F 56/63 Port details

	Port name	Port size and description	Tightening torque (N·m)
A, B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	130
T1, T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

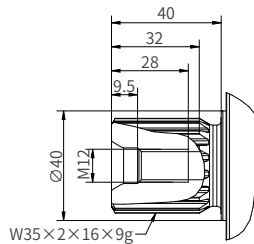
Port	H	D	M
T1	17	∅ 18	M18×1.5
T2	17	∅ 18	M18×1.5



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### • M60F 56/63 Input shaft type

“D1” type shaft





## Installation size

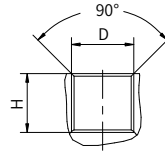
### · M60F 80/90 Direction of rotation and oil flow direction

Installation	Rotation
Flow A → B	Clockwise
Flow B → A	Counter-clockwise

### · M60F 80/90 Port details

	Port name	Port size and description	Tightening torque (N·m)
A, B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	130
T1, T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

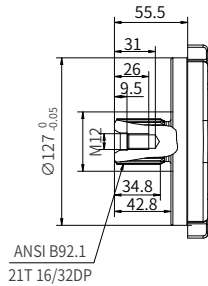
Port	H	D	M
T1	17	∅ 18	M18×1.5
T2	17	∅ 18	M18×1.5



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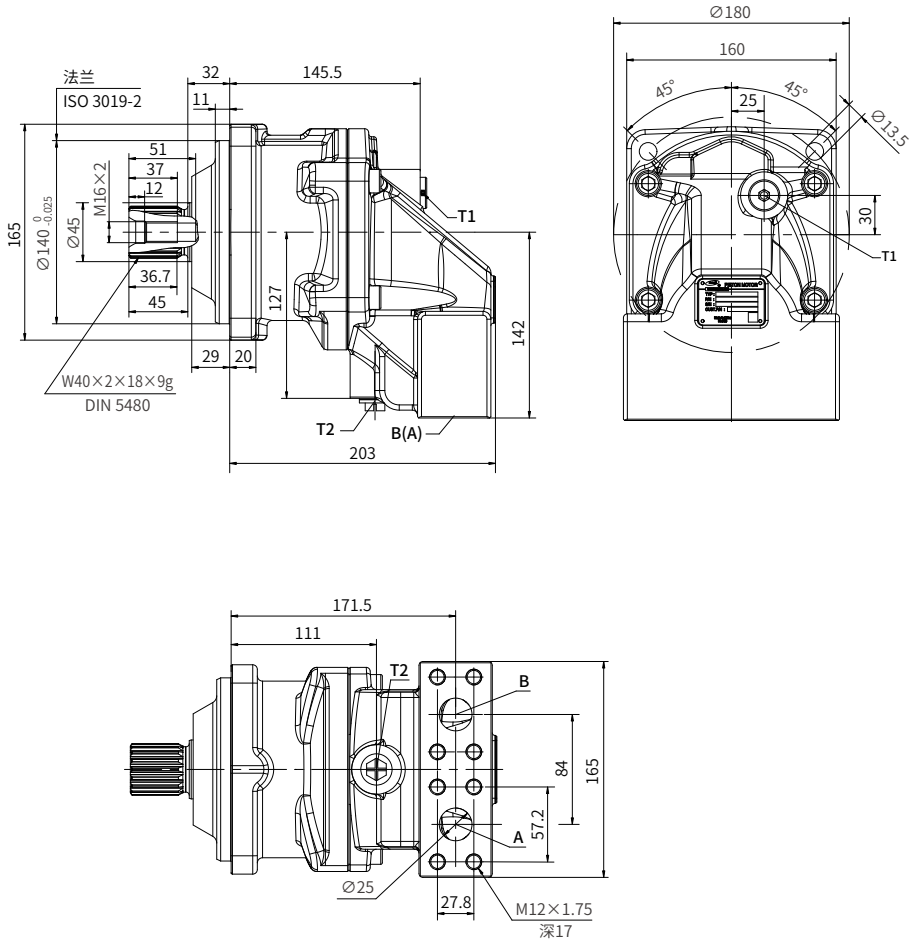
### · M60F 80/90 Input shaft type

“D3” type shaft



# Installation size

## M60F 80/90 Installation size



03

## Installation size

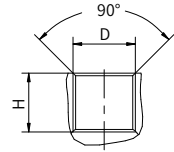
### · M60F 80/90 Direction of rotation and oil flow direction

Installation	Rotation
Flow A → B	Clockwise
Flow B → A	Counter-clockwise

### · M60F 80/90 Port details

	Port name	Port size and description	Tightening torque (N·m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	130
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

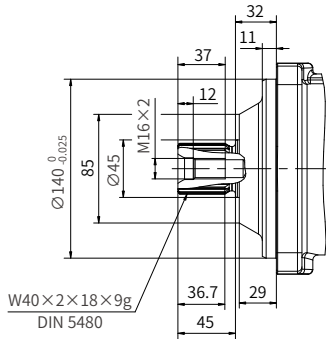
Port	H	D	M
T1	17	∅ 18	M18×1.5
T2	17	∅ 18	M18×1.5



03

### · M60F 80/90 Input shaft type

“D0” type shaft





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