



3.1

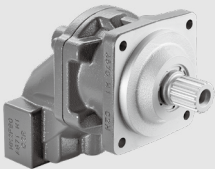
M60F SERIES

**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:	23	28	32	56	63	80	90
Nominal pressure (bar):	400	400	400	400	400	400	400
Max pressure (bar):	450	450	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		23	28	32	56	63	80	90
Max. Displacement (cc/rev)		23	28	32	56.1	63	79.8	90.5
Direction of rotation		Clockwise, Counter clockwise						
Rotation speed	Rated (rpm)	5500	6300	6300	5000		4500	
	Max. (rpm)	6000	6900	6900	5500		5000	
Rated pressure (bar)		400						
Max. pressure (bar)		450						
Theoretical output torque (N·m)	@ΔP=400 bar	146	179	204	357	401	508	576
Max. Flow (L/min)	@n _{nom}	138	177	202	281	315	359	407
Moment of inertia (kg·m ²)		0.0012	0.0012	0.0012	0.0042	0.0042	0.0056	0.0058
Weight (kg)		10.8	11.9	11.9	18		24.7	
Volume in the case (L)		0.2	0.20	0.2	0.45		0.65	
Oil viscosity (mm ² /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	Size	23	28	32	56	63	80	90
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Thread type of ports

③		23	28	32	56	63	80	90	Code
	UNC threads	●	●	●	●	●	●	●	A
	Metric threads	●	●	●	●	●	●	●	N
	G3/4 thread oil port	●	●	●					M

Direction of rotation

④	Clockwise, Counter clockwise	W
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Seals

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

Mounting flange

⑥		23	28	32	56	63	80	90	Code
	100-4 ISO 3019-2		●						N3
	125-4 ISO 3019-2				●	●			N5
	127-4 SAE J744				●	●	●	●	N6
	140-4 ISO 3019-2						●	●	N4
	101.6-2 SAE J744 (Double hole)	●	●	●					N8

Type Introduction

Input shaft

⑦		23	28	32	56	63	80	90	Code
	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
	W25×1.25×30×18×9g DIN 5480	●	●	●					D4
	Straight shaft							●	D5
	ASDI B92.1 14T-12/24DP				●	●			D6
	ASDI B92.1 13T-16/32DP	●	●	●					D7

Port position

⑧		23	28	32	56	63	80	90	Code
	Same side	●	●	●	●	●	●	●	B
	Two sides	●	●	●	●	●	●	●	A

Control

⑨	Without	N
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Speed sensor

⑩	With	S
	Without	N

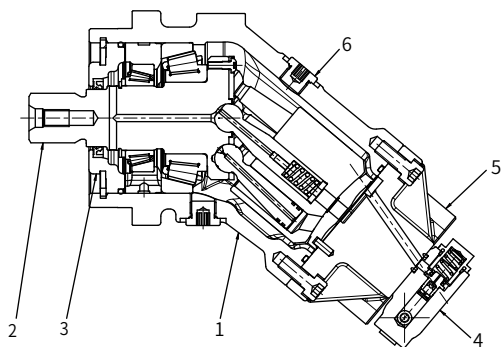
Standard / special version

⑪	Standard version						N
	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

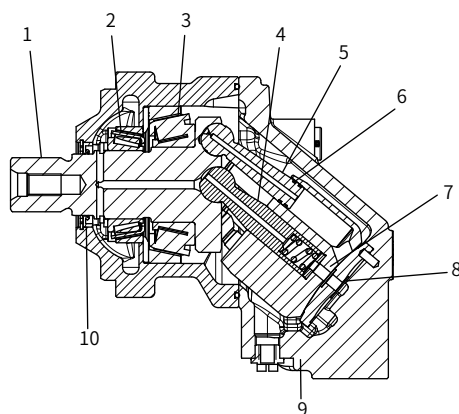
Section view

• M60F 23/28/32/56/63



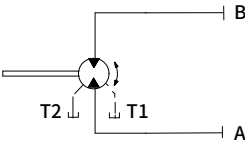
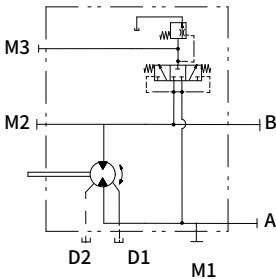
1. Housing
2. Rotating unit
3. Oil seal cover
4. Flush valve
5. Rear cover
6. Hex socket plug

• M60F 80/90



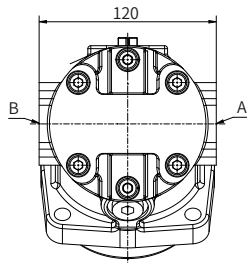
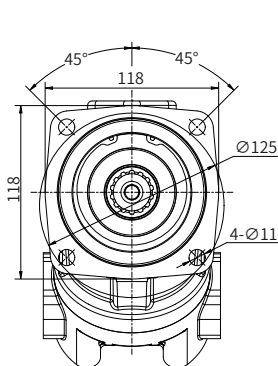
1. Output shaft
2. Tapered roller bearing (small)
3. Tapered roller bearing (large)
4. Centering journal
5. Piston
6. Sealing ring
7. Cylinder block
8. Valve plate
9. End cap
10. Oil seal

Principle

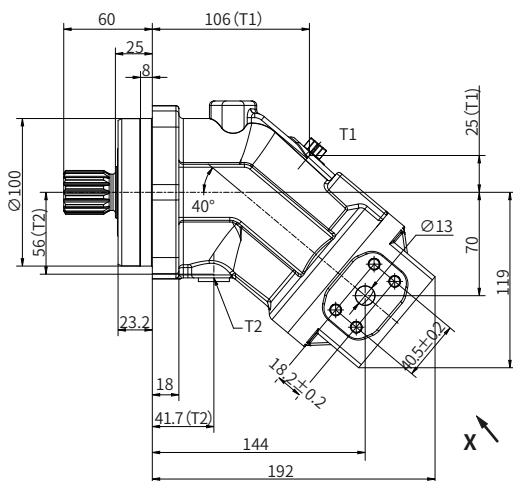


Installation size

M60F 23/28/32 Installation size



X View



Installation size

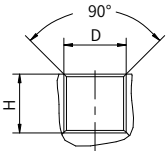
• M60F 23/28/32 Direction of rotation and oil flow direction

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

• M60F 23/28/32 Port details

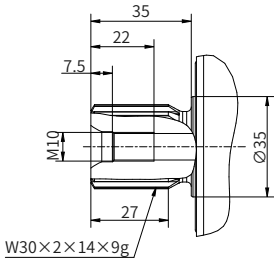
	Port name	Port size and description	Tightening torque (N·m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 1/2" M12×1.75 (depth 17mm)	32
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	55

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



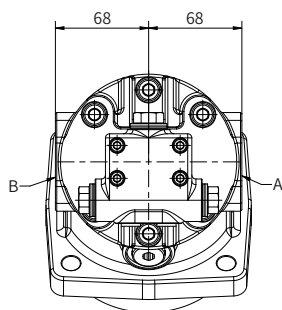
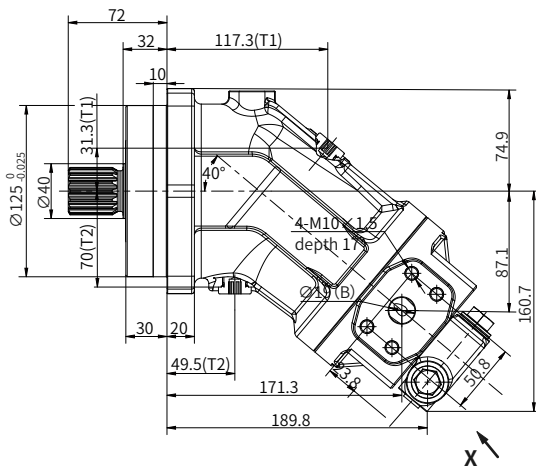
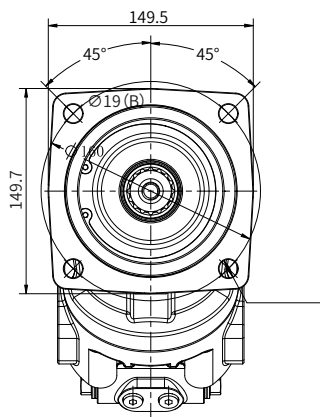
• M60F 23/28/32 Input shaft type

“D3” type shaft



Installation size

M60F 56/63 Installation size



X View

Installation size

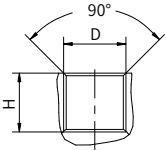
• M60F 56/63 Direction of rotation and oil flow direction

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

• M60F 56/63 Port details

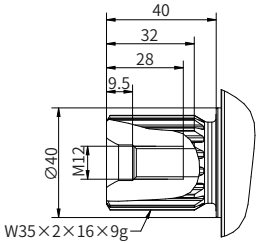
	Port name	Port size and description	Tightening torque (N·m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 3/4" M12×1.75 (depth 17mm)	130
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

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



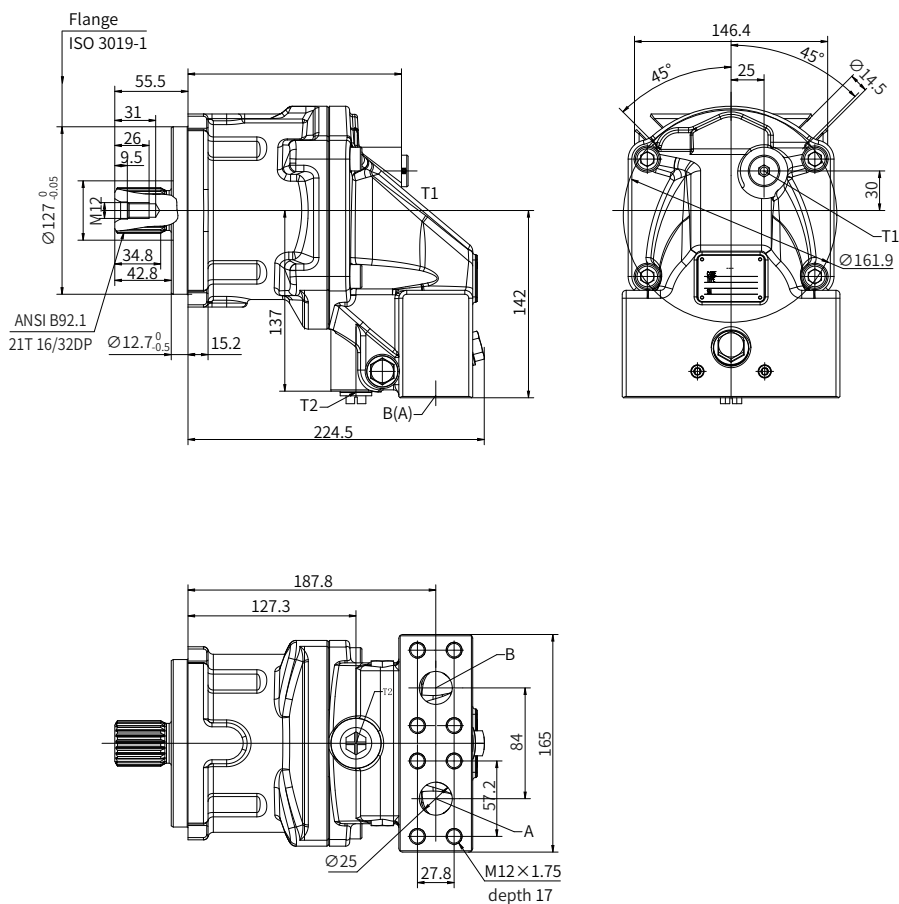
• M60F 56/63 Input shaft type

“D1” type shaft



Installation size

M60F 80/90 Installation size



Installation size

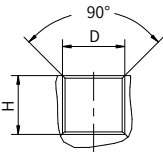
• M60F 80/90 Direction of rotation and oil flow direction

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

• M60F 80/90 Port details

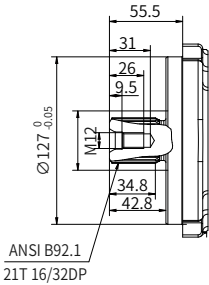
	Port name	Port size and description	Tightening torque (N · m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	130
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

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



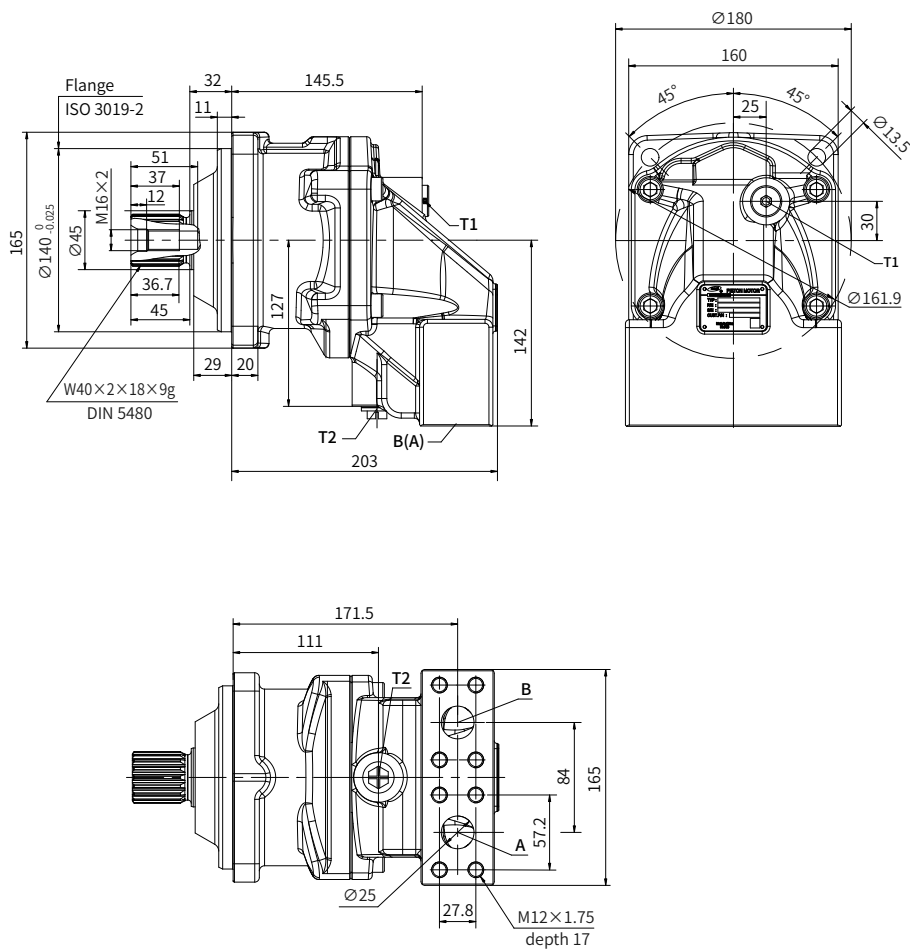
• M60F 80/90 Input shaft type

“D3” type shaft



Installation size

M60F 80/90 Installation size



Installation size

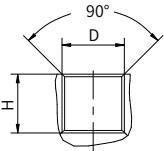
• M60F 80/90 Direction of rotation and oil flow direction

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

• M60F 80/90 Port details

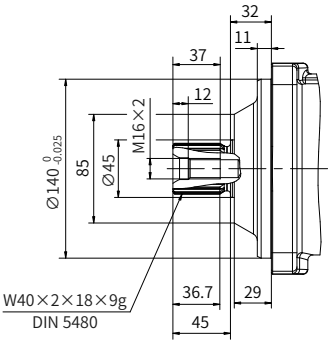
	Port name	Port size and description	Tightening torque (N · m)
A、B	Inlet port and Delivery port	SAE J518 DIN 13 1" M12×1.75 (depth 17mm)	130
T1、T2	Case drain port	DIN 3852 M18×1.5 (depth 12mm)	60

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



• M60F 80/90 Input shaft type

“D0” type shaft



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