3.3.1

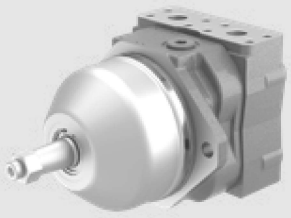
HM7X45 SERIES

Bent-axial Piston
Fixed Displacement Motor

HM7X series swash plate axial piston motor is a kind of fixed displacement motor with wide application for open and closed circuit. The swashplate design allows a compact motor with high power density. This series is applicable to construction machinery and industrial vehicles.

Apply to open or close circuit

Size:	45
Nominal pressure (bar):	280
Max pressure (bar):	350



Contents

Features

- ◁ Swash plate type quantitative axial piston motor for open or closed type hydraulic drive circuit.
- ◁ Excellent high-speed performance.
- ◁ Plug-in design, compact installation space.
- ◁ High power to weight ratio.
- ◁ The bearing longevity is realized by the swash plate structure.
- ◁ The motor oil port is concentrated on one side for easy installation and oil circuit layout.
- ◁ Anti-reverse valve can be integrated.

Technical Data

Feature	45
Max. Displacement (cc/rev)	45
Direction of rotation	Clockwise, Counter clockwise
Maximum Rotation speed (rpm)	4000
Rated pressure (bar)	280
Max. pressure (bar)	350
Theoretical output torque (N·m)	200 @ΔP=280 bar
Max. Flow (L/min)	180
Moment of inertia ($kg \cdot m^2$)	0.0033
Volume in the case (L)	0.7
Weight (kg)	19.4
Oil viscosity (mm^2/s)	5 ~ 1600, Best range: 16~36
Oil temperature (°C)	at drain port: -20 ~ +115 at inlet port: -20 ~ +90
Oil cleanliness	ISO 4406 20/18/15

Type Introduction

HM7X	045	A	M	W	D	1	0	0
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Product series

①	Bent-axial piston fixed displacement motor	HM7X

Displacement

②	Size	45

Thread type of ports(Not input port)

③	Thread type of ports	UNC threads ISO 11926	A

Thread type of Flange Port

④	In and out flange oil port（Same-side）	Metric thread ISO 724	M

Direction of rotation

⑤	Clockwise, Counter clockwise	W

Mounting flange

⑥	Taper（125：1000）	D

Mounting base

⑦	SAE 2-Hole	1

Anti-reaction valve

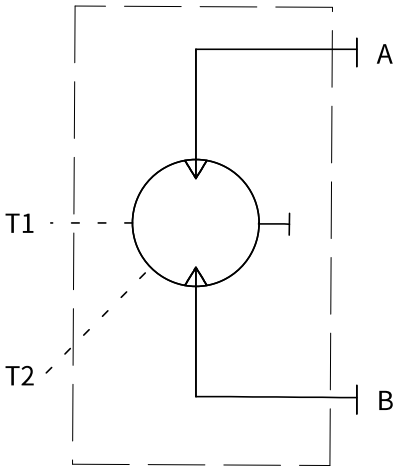
⑧	Without	0
	With	1

Speed sensor

⑨	Without	0
	With	1

Principle

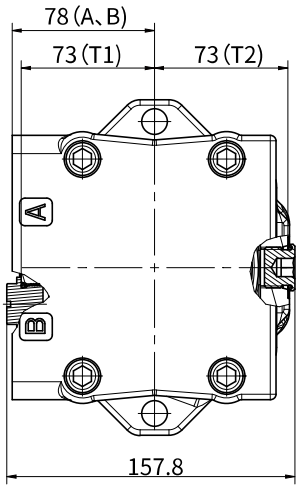
·HM7X 45

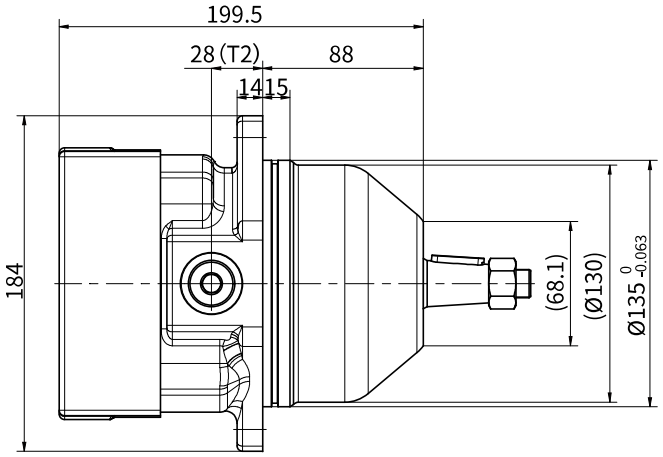


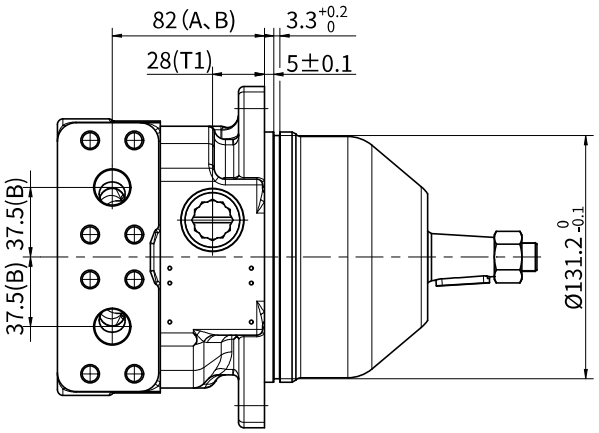
Control and Flow		Oil direction	
		Oil port A	Oil port B
Rotation direction	Clockwise rotution	Out	Inlet
	Counter clockwise rotution	Inlet	Out

Installation size

HM7X 45 Installation size

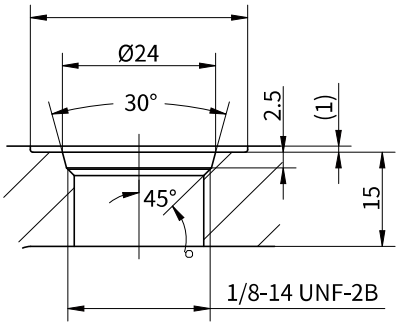




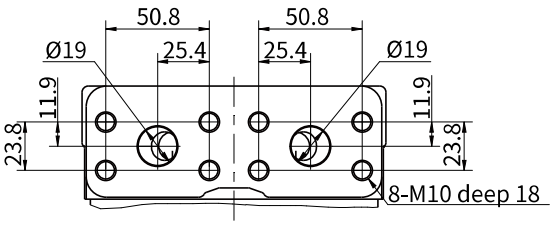


Installation size

·HM2F 90 Port details



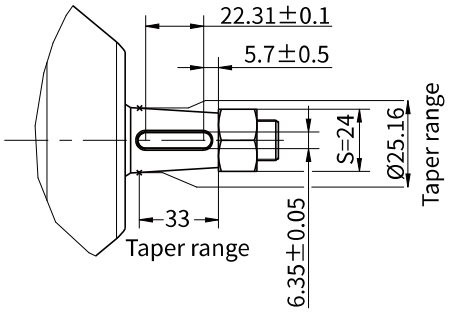
T1, T2 Port Details

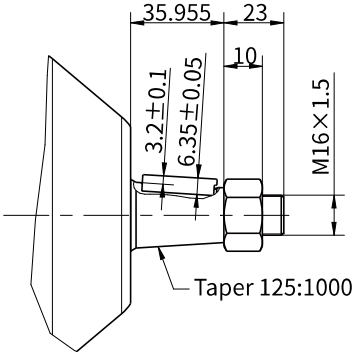


Port details

	Port name	Port size and description
A、B	Inlet port and Delivery port	SAE J518 3/4″ M10
TI、T2	Case drain port	ISO 11926 7/8-14 UNF-2B

· HM7X 45 Input shaft type





“D” type shaft

China
+86 400 101 8889
America
+01 630 995 3674
Germany
+49 (30) 72088-0
Japan
+81 03 6809 1696

3.3.2

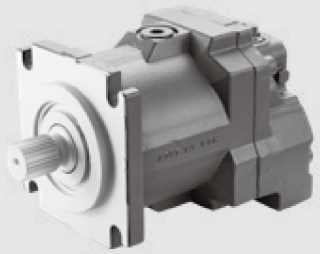
HM7X SERIES

Swash-plate Type
Axial Piston Fixed Displacement Motor

HM7X series swash plate axial piston motor is a kind of fixed displacement motor with wide application for open and closed circuit. The swashplate design allows a compact motor with high power density. This series is applicable to construction machinery and industrial vehicles.

Apply to open and closed hydraulic circuit

Displacements (cc/rev)	130	160*
Rated pressure (bar)	400	400
Maximum pressure(bar)	450	450



Contents

Features

- **High speed operation and smooth starting characteristics:**
  Optimized rotary balance design high-speed performance and excellent starting characteristics.
- **Low speed operation:**
  Superior performance in low speed operation provides excellent controllability.
- **Compact size:**
  Swash plate conguration enables the motor to be much more compact.
- **Long bearing life:**
  Swash plate conguration results in longer bearing life.

Note:
"*" means under development

Technical Data

Size		130
Max. Displacement: q_{max}	cm^3	130
Max. speed: N_{non}	min^{-1}	3400
Rated pressure: P_{nom} *1	bar	400
Max. pressure: P_{max} *2	bar	450
Theoretical output torque	N·m	830
Power	Kw	269
Max. Flow: Q	L/min	442
Moment of inertia	$kg.m^2$	0.025
Volume in the case	L	1.2
Mass	Kg	64.8
Temperature	℃	at drain port: -20 ~ +115 at inlet port: -20 ~ +90

The data in the above table is the theoretical value.

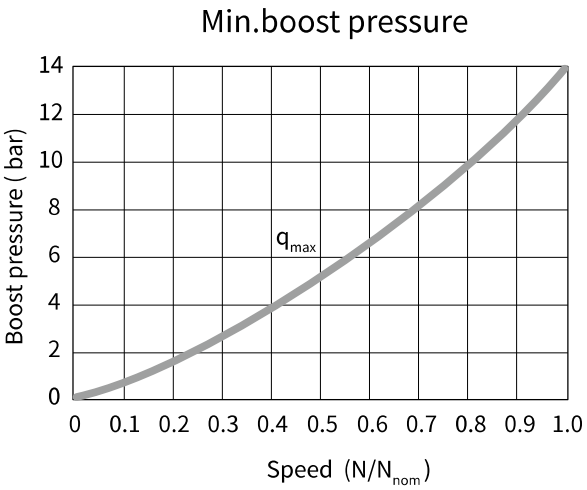
* 1: Nominal pressure corresponds to the design pressure to provide appropriate performance, function, and service life.

* 2: Hengli standard.

Min.boost pressure

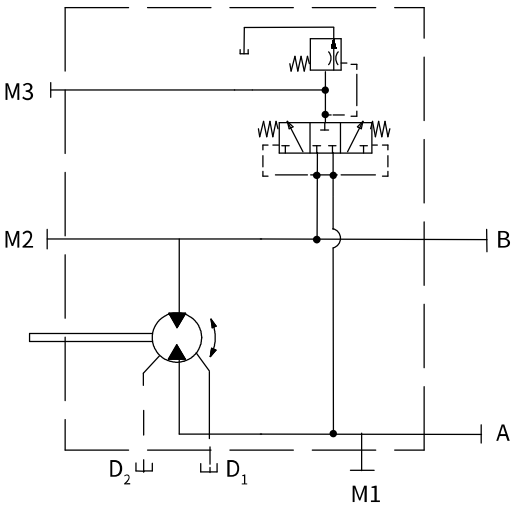
To prevent cavitation when the motor is operating in a pumping mode, a positive pressure is required at the suction port.

The figure above shows the minimum boost pressure requirement based on regular operation. In case of a rapid change of the ow, more boost pressure must be applied.



Principle

·HM7X130



Type introduction

HM7X	85	A	1	4	-	B	-	A	
①	②	③	④	⑤		⑥		⑦	⑧

Product series

①	Swash-plate Type Axial Piston Fixed Displacement Motor	HM7X

Size

②	Standard Size	130

Mounting flange and port position

	Mounting	Port position	130	代号
③	SAE J744, 4-bolt mount	working ports A and B at side, opposite		A
	SAE J744, 4-bolt mount	working ports A and B, at bottom	●	R

Port and flange fixing thread

	Threaded Port Type	Flange fixing thread type	130	Code
④	Parallel piping ISO228	Metric ISO724		1
	ANSI ISO11926	ANSI ASMEB1.1		2
	ANSI ISO11926	Metric ISO724	●	3
	Metric ISO6149	Metric ISO725		4
	Metric ISO11926	Metric ISO6162		5

●: Available ○: Under development

Type introduction

Input Shaft

	Standard	Size	130	Code
⑤	ANSI B92.1	1 1/2 in 17T 12/24DP		1
	ANSI B92.1	1 3/4 in 13T 8/16DP		2
	ANSI B92.1	2 in 15T 8/16DP		3
	ANSI B92.1	1 3/8 in 21T 16/32DP		4
	ANSI B92.1	1 1/4 in 14T 12/24DP		5
	DIN 5480	W35×2×16×9g		6
	DIN 5480	W40×2×18×9g		7
	DIN 5480	W45×2×21×9g		8
	DIN 5480	W50×2×24×9g		9
	ANSI B92.1	23T 16/32DP		10
	SAE J498B	27T 16/32DP	●	A

Flushing flow（L/min） Opening pressure 16bar, differential pressure ΔP=25bar

・HM7X75、HM7X85、HM7X100、HM7X130

	Flushing flow	Code		Flushing flow	Code		Flushing flow	Code		Flushing flow	Code
⑦	Withou flush valve	0		8	C		17	F		30	T
	3.5	A		10	D		20	G		35	J
	5	B		14	E		25	H		40	K

Customer reference code

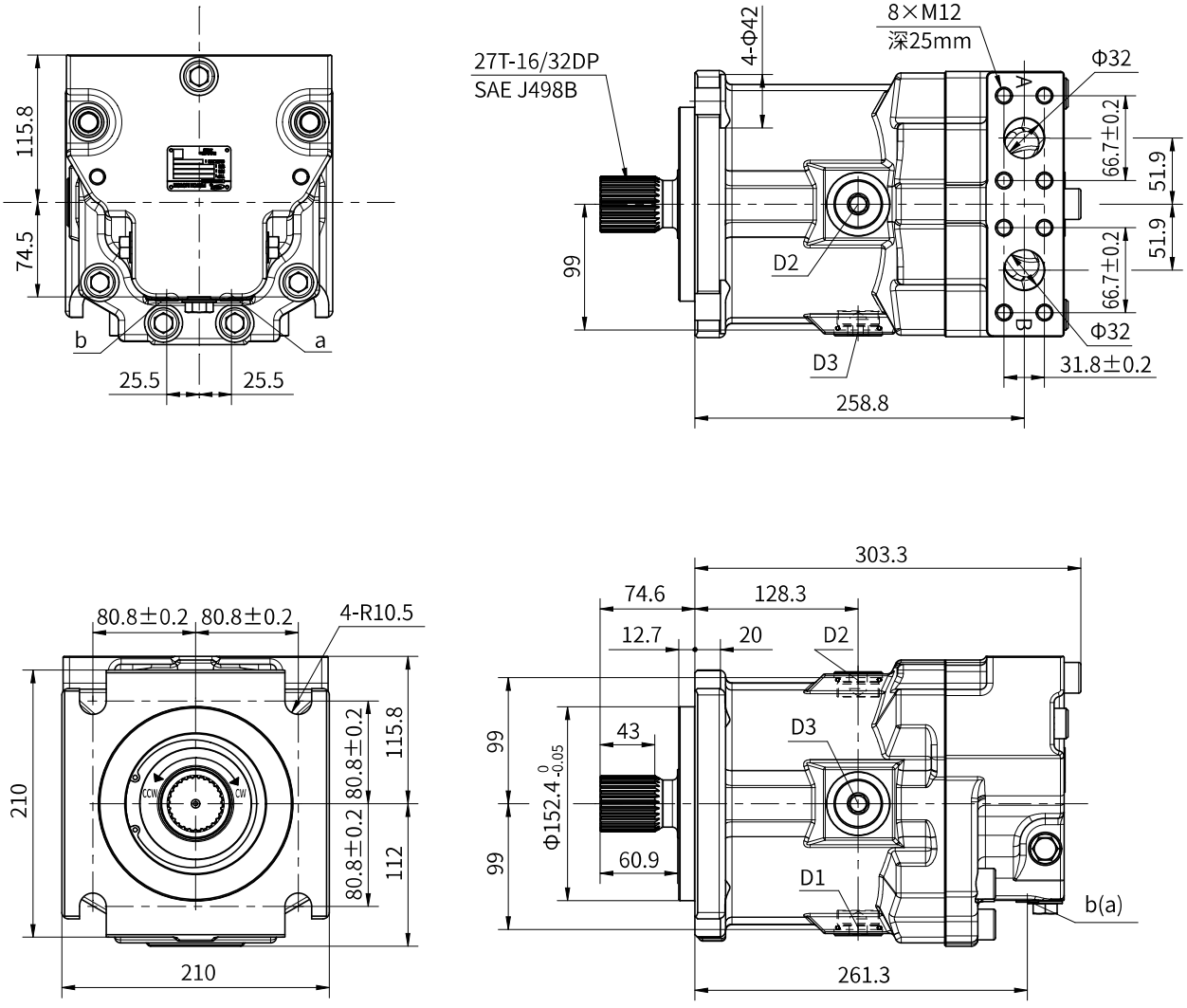
⑧	Customer reference code	

●: Available ○: Under development

Installation size

HM7X 130 Installation size

SAE mounting,
working ports A and B, at bottom



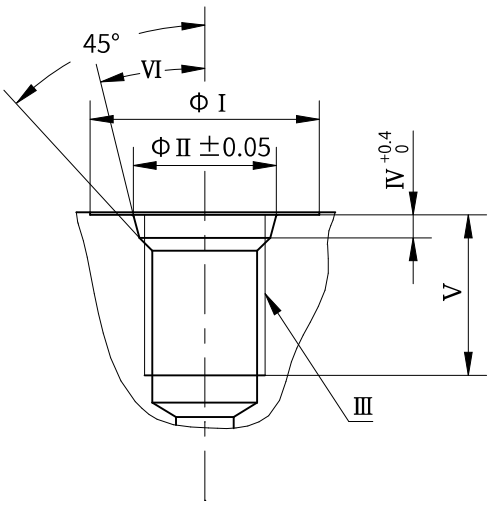
Inlet port	Outlet port	Rotation direction
A	B	Clockwise
B	A	Anti-clockwise

Note: The rotation direction is looked from the shaft end.

Installation size

·Port and flange fixing thread

(Ordering Code ④)

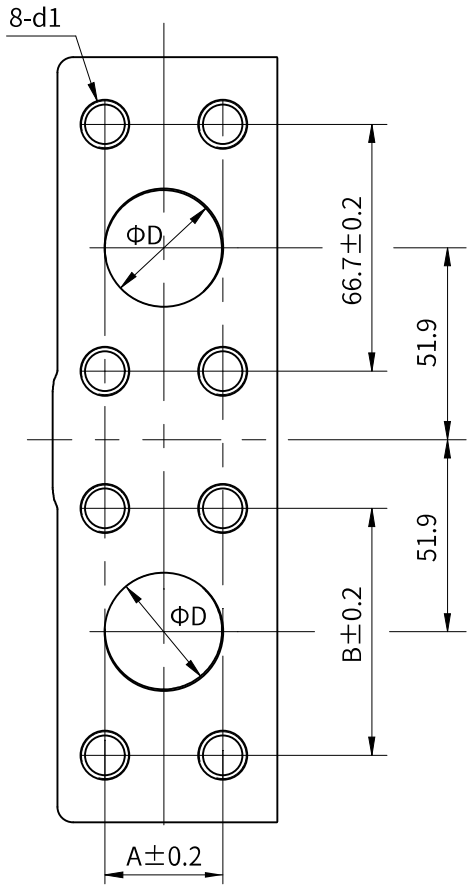


·Drain port and gauge port

ANSI thread type (Code : 2,3)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
a,b	Gauge port	25	15.7	9/16-18UNF-2B	2.5	14.5	12	30
D1/D2/D3	Drain port	49	35.55	1-5/16-12UN-2B	3.3	24	15	150

·Port details



China
+86 400 101 8889

America
+01 630 995 3674

Germany
+49（30）72088-0

Japan
+81 03 6809 1696