



3.3

HM7X SERIES

Swash-plate Type Axial Piston Fixed Displacement Motor

HM7X series swashplate 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)	63	75	85	100	130	160*
Rated pressure (bar)	400	400	400	400	400	400
Maximum pressure(bar)	450	450	450	450	450	450



Contents

Technical Data	02
Min.boost pressure	03
Principle	03
Type introduction	04
Installation size	
· HM7X 63 Installation size	06
· HM7X 75 Installation size	08
· HM7X 85 Installation size	12
· HM7X 100 Installation size	14
· HM7X 130 Installation size	16

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		63	75	85	100	130
Max. Displacement: q_{max}	cm ³	63	75	85	100	130
Max. speed: N_{non}	min ⁻¹	5000	4500	4500	3550	3400
Rated pressure: P_{nom} *1	bar	400	400	400	400	400
Max. pressure: P_{max} *2	bar	450	450	450	450	450
Theoretical output torque	N·m	401	478	542	636	830
Power	Kw	210	225	255	236	269
Max. Flow: Q	L/min	315	337	382	355	442
Moment of inertia	kg.m ²	0.0072	0.0072	0.011	0.015	0.025
Volume in the case	L	1	1	0.5	0.5	1.2
Mass	Kg	26	30.5	26	38	64.8
Temperature	°C	at drain port: -20 ~ +115 at inlet port: -20 ~ +90				
Coating *3		Red / Yellow / Black / Gray / Blue				

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.

: Nominal pressure corresponds to the design pressure at which the products will function properly.

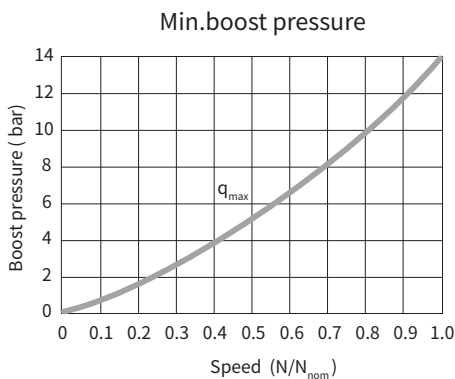
* 2: Summation of pressure on A and B port shall be 560bar or less.

* 3: Hengli standard.

Min.boost pressure

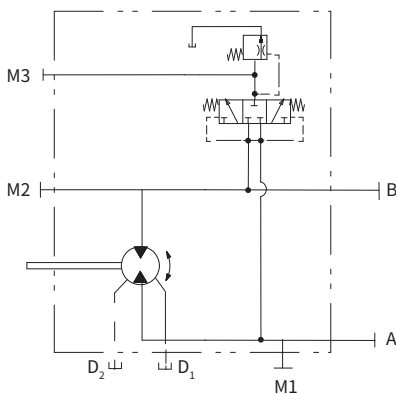
To prevent cavitation when the motor is operating in a pumping mode, a positive pressure is required at the suction port.

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.

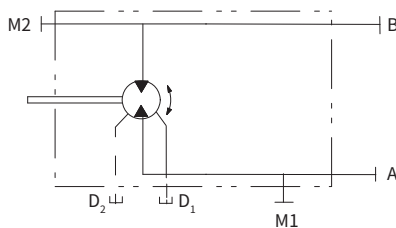


Principle

- HM7X75、HM7X85、HM7X100、HM7X130



- HM7X63



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	63	75	85	100	130
-----------------	----	----	----	-----	-----

Mounting flange and port position

	Mounting	Port position	63	75	85	100	130	Code
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	63	75	85	100	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	63	75	85	100	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

Displacement (cm³)

⑥	Size 85	A: 90	○	B: 85	●	C: 80	○	D: 75	●	E: 63	●
---	---------	-------	---	-------	---	-------	---	-------	---	-------	---

Flushing flow (L/min) Opening pressure 16bar, differential pressure ΔP25bar

·HM7X75、HM7X85、HM7X100、HM7X130

⑦	Flushing flow	Code	Flushing flow	Code	Flushing flow	Code	Flushing flow	Code
	Without 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	
---	-------------------------	--

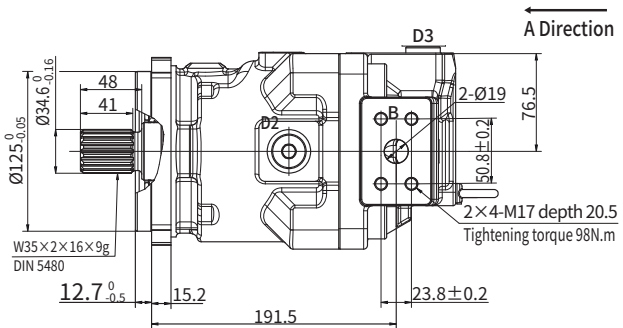
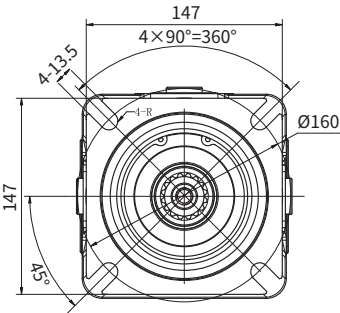
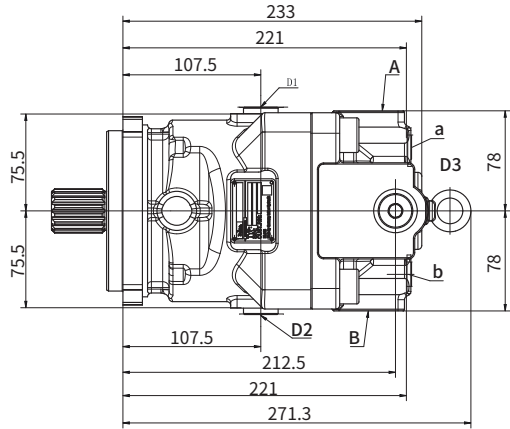
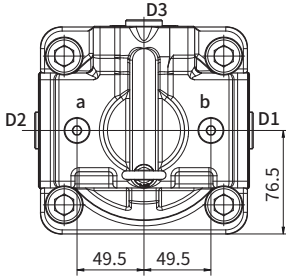
●: Available ○: Under development

03

Installation size

HM7X 63 Installation size

SAE mounting,
working ports A and B at side, opposite



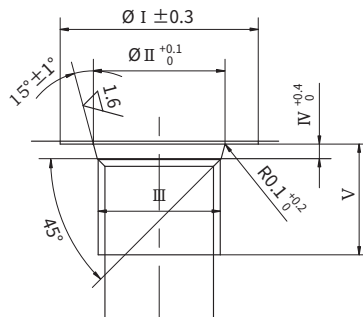
Inlet port	Outlet port	Rotation direction
A	B	Clockwise
B	A	Anti-clockwise

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

Parallel piping thread type (Code : 1)

	Symbol	I	II	III	IV	V	Tightening torque (N.m)
M1、M2	Gauge port	24	15.6	G1/4	2.5	15	36
D1/D2/D3	Drain port	34	22.6	G1/2	2.5	19	98

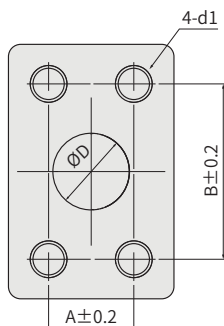
Metric thread type (Code : 4)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	Gauge port	15.6	M14×1.5	2.4	15.5	15	47	59
40	Drain port	29.2	M27×2	3.1	13	15	180	170

ANSI thread type (Code : 2, 3)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	Gauge port	25	15.6	9/16-18UNF-2B	2.5	15.5	12	59
34	Drain port	41	29.2	1-1/16-12UN-2B	3.3	13	15	170

• Port details

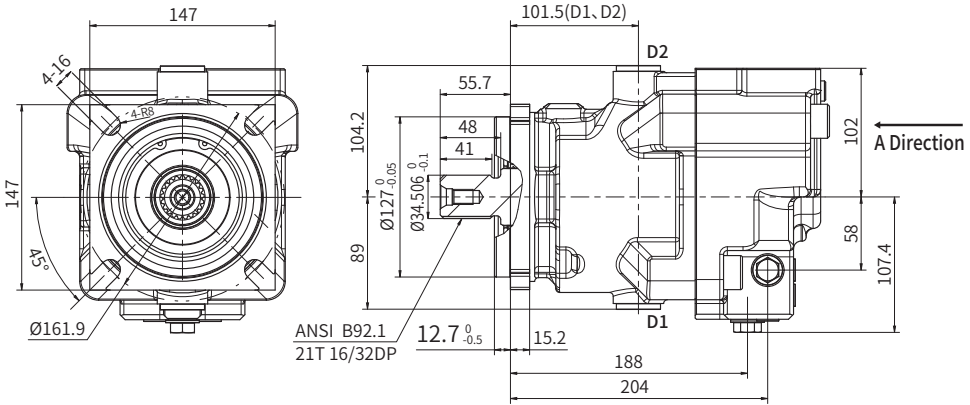
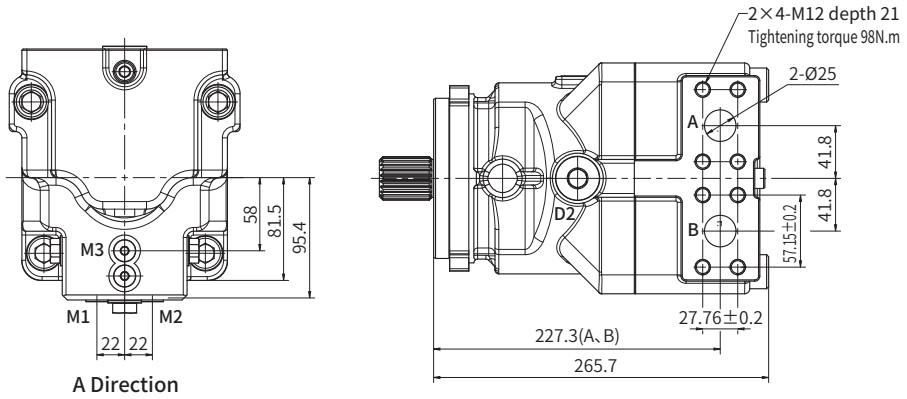


Ordering Code ④	d1	A	B	D	Tightening torque (N.m)
1	7/16-14UNC-2B	27.8	57.2	25	98
2-3-4	M12	27.8	57.2	25	98

Installation size

HM7X 75 Installation size

SAE mounting,
working ports A and B, at bottom



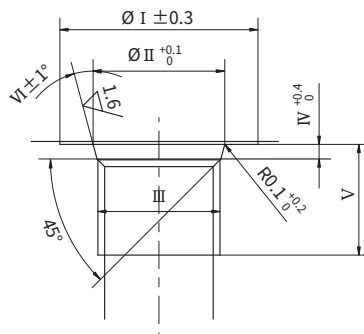
Inlet port	Outlet port	Rotation direction
A	B	Clockwise
B	A	Anti-clockwise

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

Installation size

• Port and flange fixing thread

(Ordering Code ④)

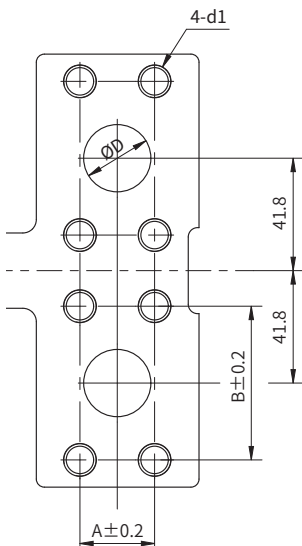


• Drain port and gauge port

ANSI thread type (Code : 2,3)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
M1、 M2、 M3	Gauge port	25	15.7	9/16"-18UNF-2B	2.5	15.5	12	25
D1/D2	Drain port	41	29.2	1 1/16"-12UN-2B	3.3	15	15	167

• Port details

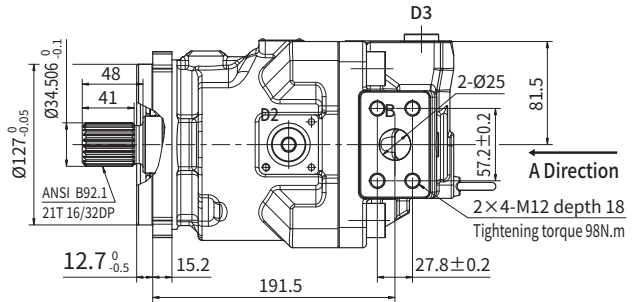
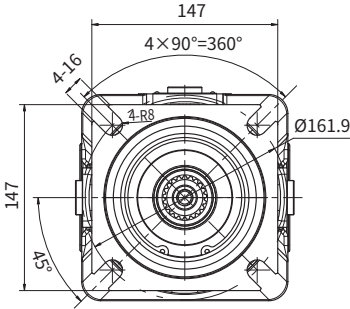
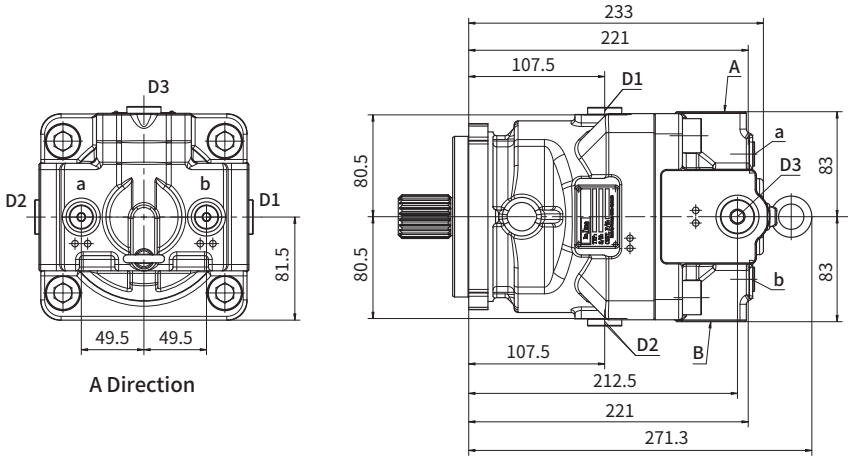


Ordering Code ④	d1	A	B	D	Tightening torque (N.m)
2	7/16-14UNC-2B	27.8	57.2	25	98
1-3-4	M12	27.8	57.2	25	98

Installation size

HM7X 85 Installation size

SAE mounting,
working ports A and B at side, opposite



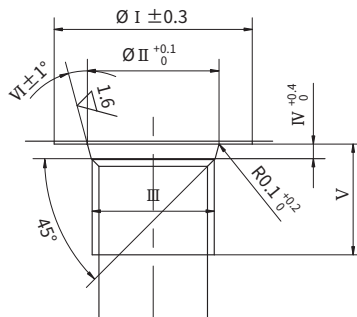
Inlet port	Outlet port	Rotation direction
A	B	Clockwise
B	A	Anti-clockwise

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	15.6	9/16-18UNF-2B	2.5	15.5	12	59
D1/D2/D3	Drain port	41	29.2	1-1/16-12UN-2B	3.3	13	15	170

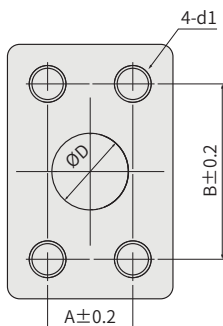
Metric thread type (Code : 4)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	Gauge port	15.6	M14×1.5	2.4	15.5	15	47	59
40	Drain port	29.2	M27×2	3.1	13	15	180	170

Parallel piping thread type (Code : 1)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	25	15.6	G 1/4	2.5	15.5	15	36	59
34	34	29.2	G 1/2	2.5	13	15	98	170

• Port details



Ordering Code ④	d1	A	B	D	Tightening torque (N.m)
1	7/16-14UNC-2B	27.8	57.2	25	98
2-3-4	M12	27.8	57.2	25	98

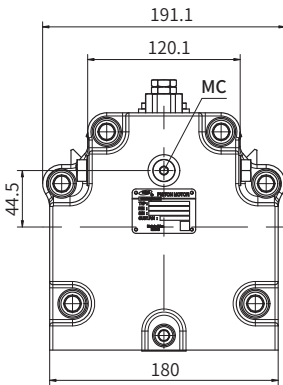
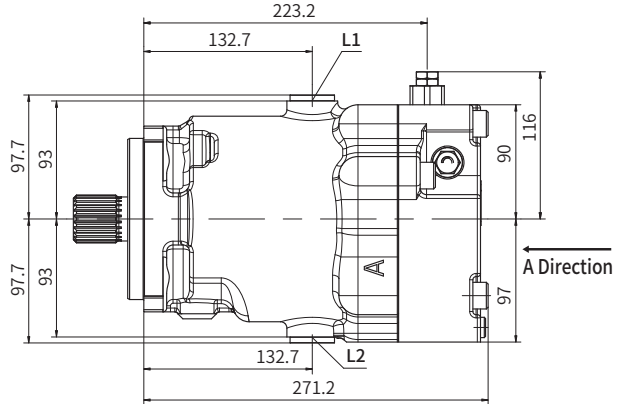
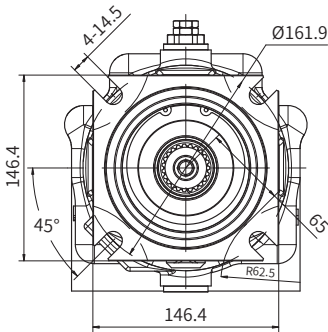
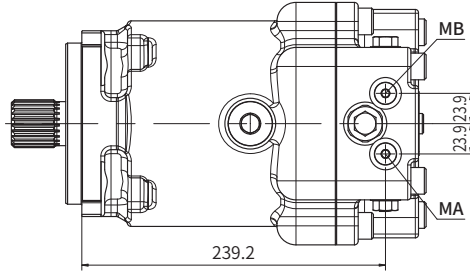
Installation size

HM7X 100 Installation size

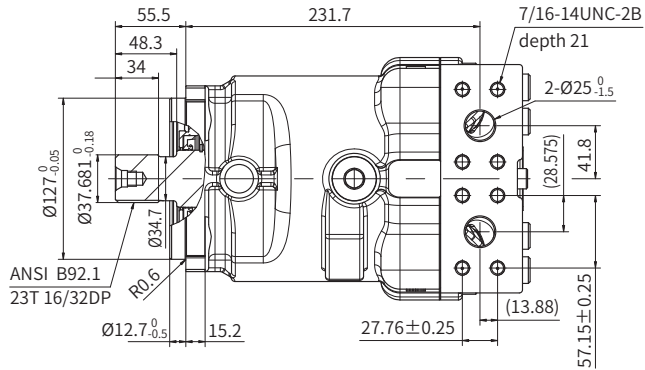
SAE mounting, working ports A and B, at bottom

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

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



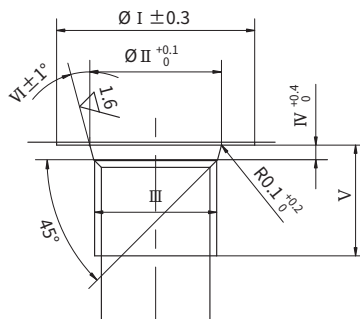
A 向



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	15.6	9/16-18UNF-2B	2.5	15.5	12	59
D1/D2/D3	Drain port	41	29.2	1-1/16-12UN-2B	3.3	13	15	170

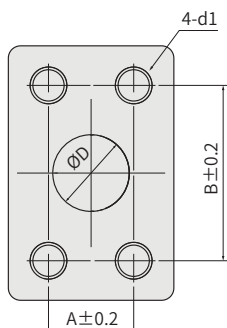
Metric thread type (Code : 4)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	Gauge port	15.6	M14×1.5	2.4	15.5	15	47	59
40	Drain port	29.2	M27×2	3.1	13	15	180	170

Parallel piping thread type (Code : 1)

	Symbol	I	II	III	IV	V	VI	Tightening torque (N.m)
25	25	15.6	G 1/4	2.5	15.5	15	36	59
34	34	29.2	G 1/2	2.5	13	15	98	170

• Port details

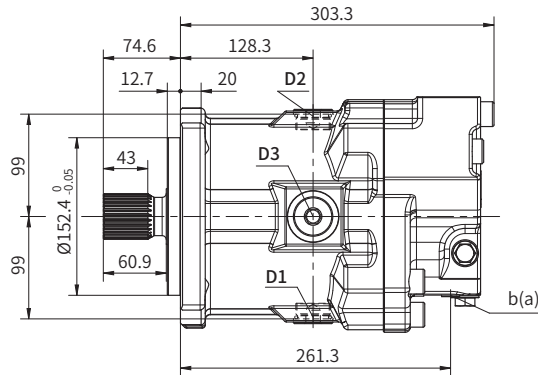
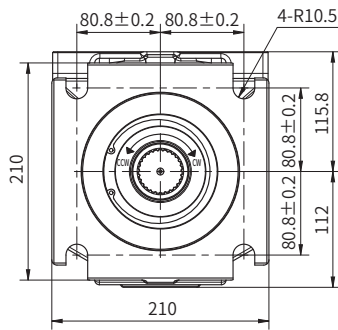
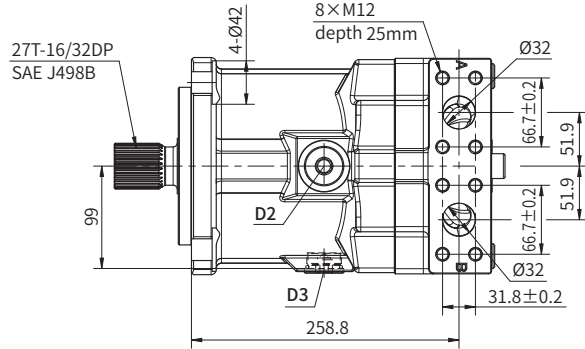
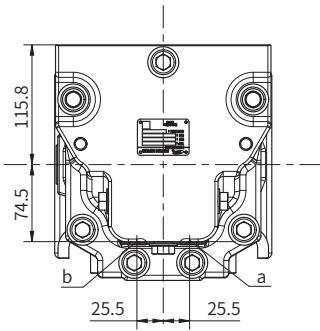


Ordering Code ④	d1	A	B	D	Tightening torque (N.m)
2	7/16-14UNC-2B	27.8	57.2	25	98
1-3-4	M12	27.8	57.2	25	98

Installation size

HM7X 130 Installation size

SAE mounting, working ports A and B, at bottom



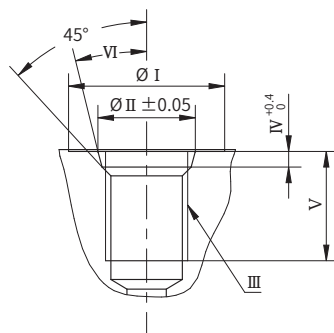
Inlet port	Outlet port	Rotation direction
A	B	Clockwise
B	A	Anti-clockwise

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

Installation size

• Port and flange fixing thread

(Ordering Code ④)

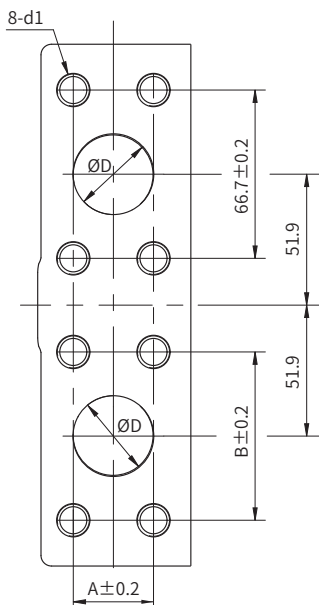


• Drain port and gauge port

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



Ordering Code ④	d1	A	B	D	Tightening torque (N.m)
3	M12	31.8	66.7	32	98

China

+86 400 101 8889

America

+01 630 995 3674

Germany

+49 (30) 72088-0

Japan

+81 03 6809 1696



© This brochure can be reproduced, edited, reproduced or transmitted electronically without the authorization of Hengli Hydraulic Company. Due to the continuous development of the product, the information in this brochure is not specific to the specific conditions or applicability of the industry, thus, Hengli does not take any responsibility for any incomplete or inaccurate description.