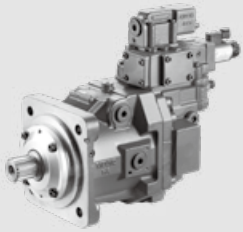
HM7V SERIES

Swash-plate Type
Axial Piston Variable Displacement Motor

HM7V series swashplate axial piston motor is the variable 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) 112
Rated pressure (bar): 400
Maximum pressure(bar): 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 provides the more compact structure and exibility in system design.
- **Long bearing life:**
  Swash plate conguration results in longer bearing life.

Technical Data

Size		HM7V 112
Min. Displacement: q_{min}	cc/rev	0 ～ 90
Max. Displacement: q_{max}	cc/rev	90 ～ 112
Max. speed: N_{non} /N_{max} *1	rpm	3550/5600
Rated pressure: P_{nom} *2	bar	400
Max. Pressure: P_{max}	bar	450
Theoretical output torque	N·m	713
Power	Kw	265
Max. Flow: Q	L/min	398
Moment of inertia	$kg.m^2$	0.015
Volume in the case	L	1
Mass	Kg	46
Temperature	℃	at drain port: -20 ~ +115 at inlet port: -20 ~ +90

Note:

*1: Nnom: Max. speed at q_{max}

Nmax: Max. speed at $q < 0.6q_{max}$

*2: Rated pressure corresponds to the design pressure to provide proper performance, function, and service life.

Type introduction

HM7V	112	A	D	4	3	-	A	Y	1	H1	B1	X	X	N	-	01
①	②	③	④	⑤	⑥		⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭		⑮

Product series

①	Product series	HM7V

Size

②		112
	Standard size	●

Design series

③	Standard series	A

Mounting flange and port position

	Mounting	Port Position	112	
④	SAE J744，4-bolt Mount	Rear	○	A
	SAE J744，4-bolt Mount	Side	○	B
	ISO3019-2，4-bolt Mount	Rear	○	C
	ISO3019-2，4-bolt Mount	Side	●	D

Port and flange fixing thread

	Threaded port type	Flange fixing thread type	112	
⑤	ANSI ISO 11926	ANSI ASME B1.1	○	1
	ANSI ISO 11926	Metric ISO 724	○	2
	Metric ISO 6149	Metric ISO 724	○	3
	Parallel Piping ISO 228	Metric ISO 724	●	4

Input shaft

	Standard	Speci cations	112	
⑥	ANSI B 92.1	1 3/4 in 13T 8/16DP	○	1
	DIN 5480	W45×2×21×9g	○	2
	DIN 5480	W40×2×18×9g	●	3

Max. displacement

⑦	112	A
	107	B
	100	C
	95	D

Type introduction

Min. displacement

⑧	68	A
	50	B
	40	C
	30	D
	22	E

Speed Sensor

		112	
⑨	Without speed sensor	●	1
	With speed sensor	○	2

Control type

⑩	Pressure related control	H1

Optional valves

⑪	Two position displacement control	With Electric Two-Position Control Valve, 24V	B1

Accessories

⑫	Without Any Accessory	X

Counter balance valve

⑬	Without Counter Balance Valve	X

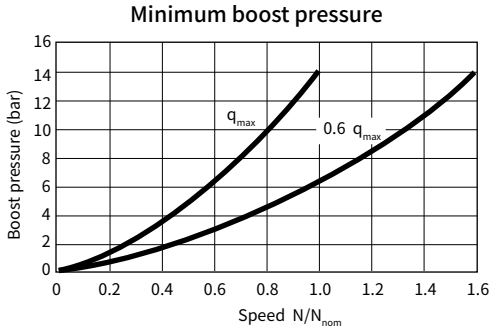
Response Speed of Control

⑭	Standard	N

Design Code

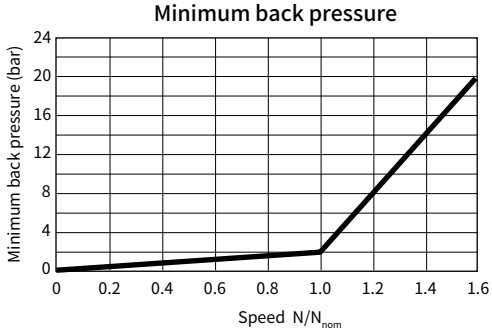
⑮	01 ～	**

Precautions for System Design



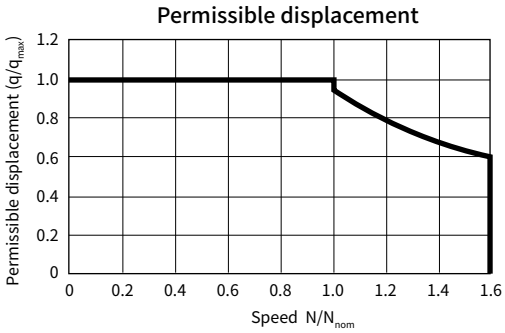
· Minimum boost pressure

To prevent cavitation when the motor is operating in a pumping mode, a positive pressure is required at the suction port. The gure on the right shows the minimum boost pressure requirement based on the regular operation. In case of a rapid change of the ow volume, more boost pressure must be applied.



· Minimum back pressure

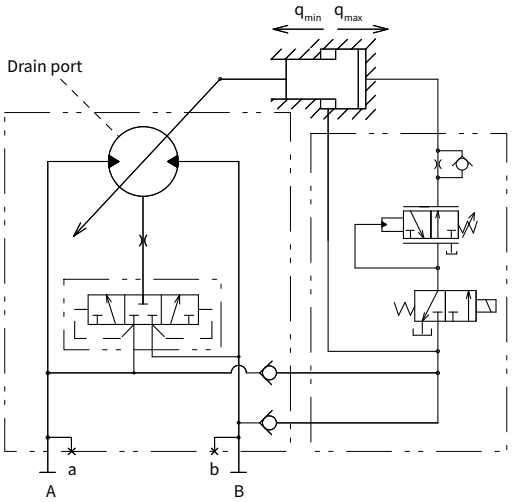
To ensure the optimal performance and life time the back pressure is required at the lower pressure port.
Motor casing pressure must be ≦ 2bar.



· Permissible Displacement, Speed Related

The gure on the left shows permissible displacement in relation to the motor operating speed. Design the system not to exceed this requirement.

Hydraulic Circuit

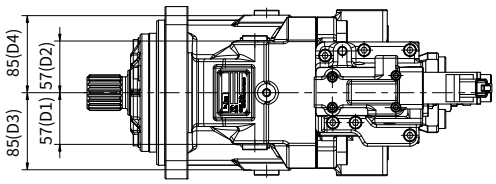


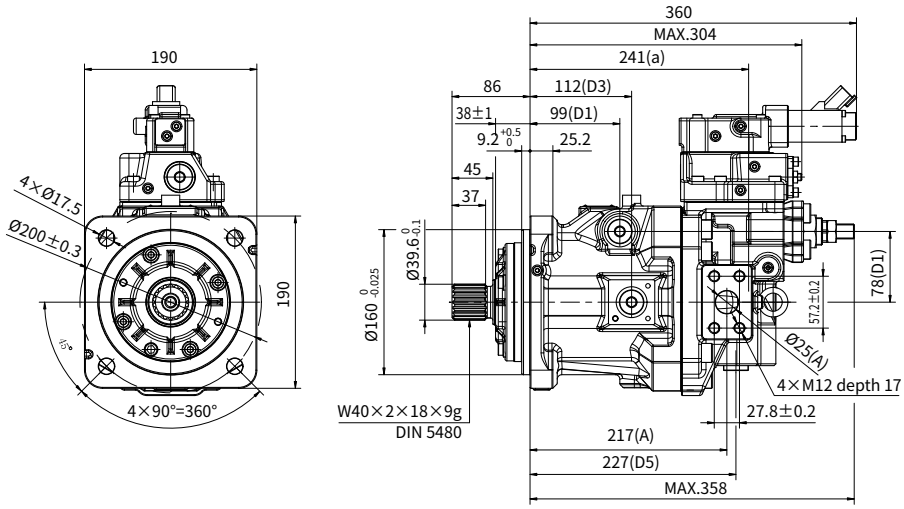
Solenoid Specifications

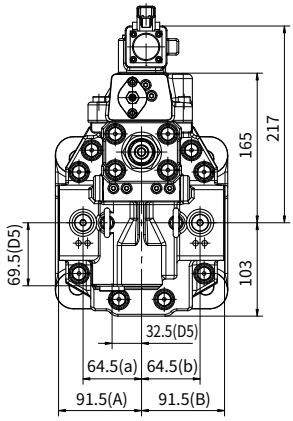
Voltage	DC 24V
Resistance	23.5 Ω
Connector type	Deutsch DT04-2P

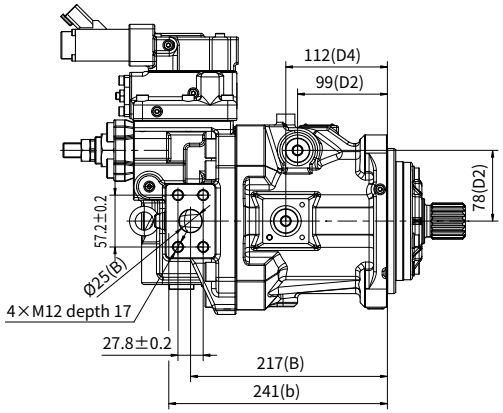
Installation size

HM7V 112Installation size



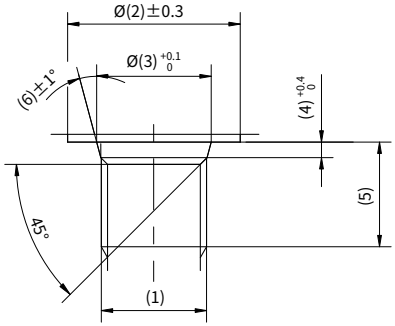






Installation size

· Port and flange fixing thread



Thread Port

· ANSI thread type (Code : 1, 2)

	Symbol	(1)	(2)	(3)	(4)	(5)	(6)	Tightening torque (N.m)
Gauge port	a, b	9/16-18UNF-2B	25	15.6	2.5	12.7	12	59
Pilot port	Pi	9/16-18UNF-2B	25	15.6	2.5	12.7	12	59
Drain port	D1 ～ D5	1-1/16-12UN-2B	41	29.2	3.3	12.7	15	170

· Metric thread type (Code : 3)

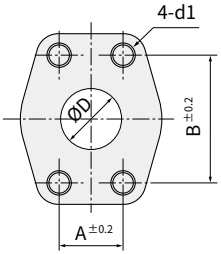
	Symbol	(1)	(2)	(3)	(4)	(5)	(6)	Tightening torque (N.m)
Gauge port	a, b	M14×1.5	25	15.6	2.4	12.5	15	47
Drain port	D1 ～ D5	M27×2	40	29.4	3.1	12.7	15	180

· Parallel piping thread type (Code : 4)

	Symbol	(1)	(2)	(3)	(4)	(5)	(6)	Tightening torque (N.m)
Gauge port	a, b	G 1/4	25	15.6	2.5	15	15	36
Pilot port	Pi	G 1/4	25	15.6	2.5	15	15	36
Drain port	D1 ～ D5	G 1/2	34	22.6	2.5	12.7	15	108

Installation size

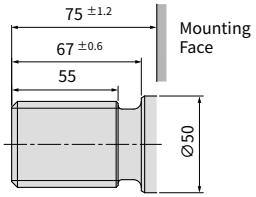
·Port details



·ANSI thread type (Code : 1, 2)

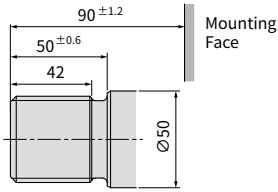
Port thread type code	d1	A	B	D	Tightening torque (N.m)
1	7/16-14UNC-2B	27.8	57.2	25	98
2, 3, 4	M12	27.8	57.2	25	98

·Input Shaft



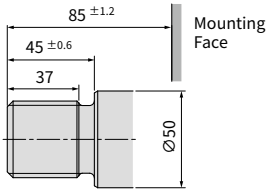
Code：1

ANSI B92.1a
(1 3/4in 13T 8/16DP)



Code：2

DIN 5480
(W40×2×18×9g)



Code：3

DIN 5480
(W45×2×21×9g)

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