4.3

HM4V SERIES

Axial Piston Variable Displacement Motor (Containing Gearbox)

Primarily suitable for application in excavator track travel systems

Size:	12	21	22	290	340
Max service pressure (bar):	245	245	245	345	345

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Features

Composite product featuring a high-e f ciency plunger motor and high-precision reducer

Dual-speed switching controlled not only by pilot-operated hydraulic control but also by working load

Highly compact design integrating bu f er relief valve, balance valve, parking brake, etc., while enabling powerful travel

Dedicated motor for hydraulic excavator track travel systems

Technical data

Motor	Size		12	21	22	290			340
	Maximum displacement cc/rev		11.3	20.7	22.1	290.7			337.2
	Direction of rotation		Bidirectional						
	Max rotation speed (rpm)		2957	2556	3691	2175			2650
	Max service pressure (bar)		245	245	245	345			345
	Torque	Rated (N·m)	48.4	80.7	86.2	1596			1852
		Max (N·m)	20	55.9	55.9	1170			1400
	Two-speed switch pilot pressure	Normal (bar)	33	33	33	39			39
		Max (bar)	49	49	49	49			59
	Shell pressure	Rated (bar)	3	3	3	2			2
		Max (bar)	10	10	10	5			5
Reducer	Reducer Model		RGTM22A	RGTM34A	RGTM50A	RGTL60A	RGTL75A	RGTL95B	RGTL180B
	Reduction ratio		36.96	36.51	52.73	40.467	53.05	66.17	76.44
Weight (including reducer) (kg)			16	34	44	418	500	709	755
Oil viscosity mm^2/s*			7–1600, Optimal Range: 12–80						
Oil Temperature			-20~90						
Oil Cleanliness			ISO 4406 20/18/15						

When the oil viscosity is between 200~1000mm2/s, it needs to be preheated before operation.

Type introduction

HM4V	12	C	P	T	N	N	-	RGTM22A	-	XXX

Product series

	Swash plate axial piston motor	HM4V

Size

	Size	12	21	22	290	340

Port and fange fxing thread

		12	21	22	290	340	Code
	UNC unifed thread, ISO 11926	○	○	○	○	○	A
	BSPPG thread , JIS B2351	○	○	○	○	○	G
	Metric thread, ISO 9974	○	○	○	○	○	M
	Special inch pipe thread	●	●	●	●	●	C

Built-in parking brake

		12	21	22	290	340	Code
	With built-in parking brake	●	●	●	●	●	P
	Without built-in parking brake	○	○	○	○	○	N

Automatic change valve

		12	21	22	290	340	Code
	With automatic change valve	●	●	●	●	●	T
	Without automatic change valve	●	●	●	●	●	N

No impact relief valve

		12	21	22	290	340	Code
	With no impact relief valve				●	●	S
	Without no impact relief valve	●	●	●			N

Safety valve against surge

	Without safety valve against surge	N

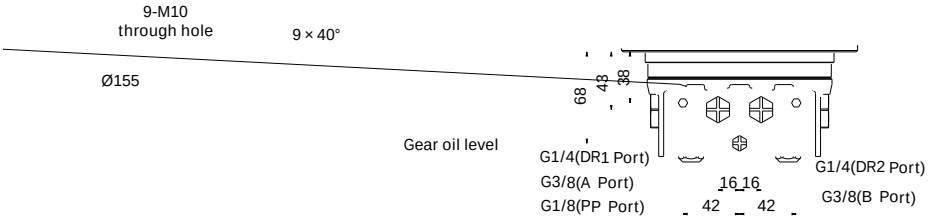
Type introduction

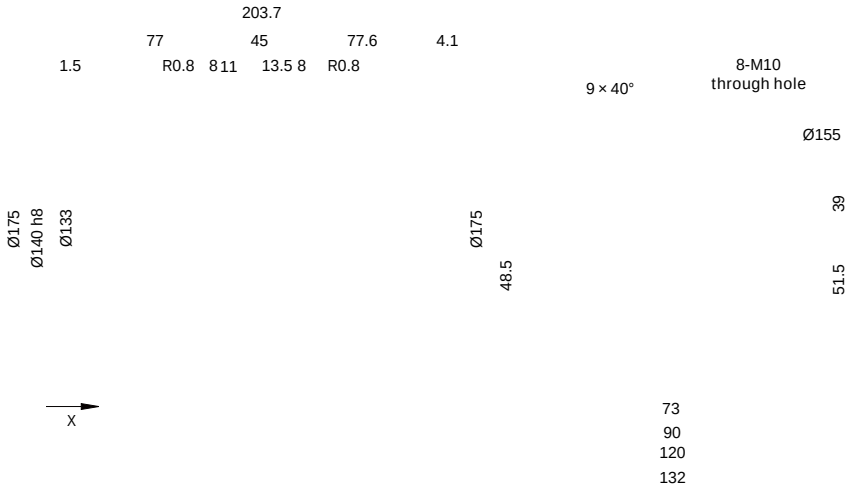
Reducer type (Only HM4V12 HM4V21 HM4V22)

		12	21	22	290	340	Code
	Without reducer				●	●	None
	RGTM22A	●					RGTM22A
	RGTM34A		●				RGTM34A
	RGTM50A			●			RGTM50A
	RGTL60A				●		RGTL60A
	RGTL75A				●		RGTL75A
	RGTL95B				●		RGTL95B
	RGTL180B					●	RGTL180B

Installation size

·HM4V12-RGTM22A





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

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

Port details

·HM4V12-RGTM22A

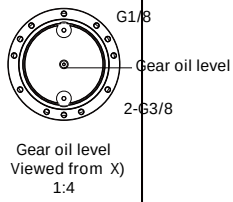
	Port Name	Port Size and Description
A	Inlet port and Delivery port	G3/8 depth 14mm
B		
DR1 DR2	Housing drain port	G1/4 depth 12 mm
PP	Two speed switch pilot oil port	G1/8 depth 10 mm

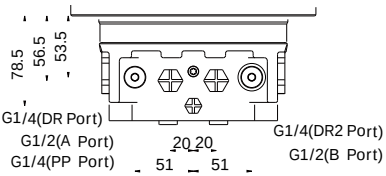
Special inch non - sealed pipe thread ori f ce details

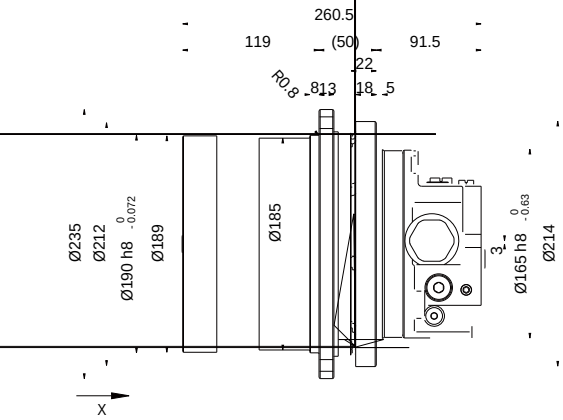
Port (M)	H	L	D	D1	θ
G1/4	12	2.5	Ø15.6	Ø24	15°
G1/2	17	2.5	Ø22.6	Ø34	15°
G1/8	10	2	Ø11.6	Ø18	15°

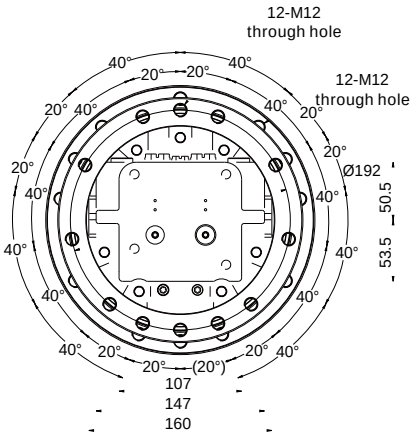
Installation size

·HM4V21-RGTM34A









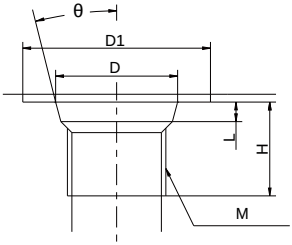
Inlet port	Outlet port	Rotation direction
B	A	Clockwise
A	B	Anti-clockwise

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

Port details

·HM4V21-RGTM34A

	Port Name	Port Size and Description
A	Inlet port and Delivery port	G1/2 depth 17mm
B		
DR1 DR2	Housing drain port	G1/4 depth 12 mm
PP	Two speed switch pilot oil port	G1/4 depth 12 mm

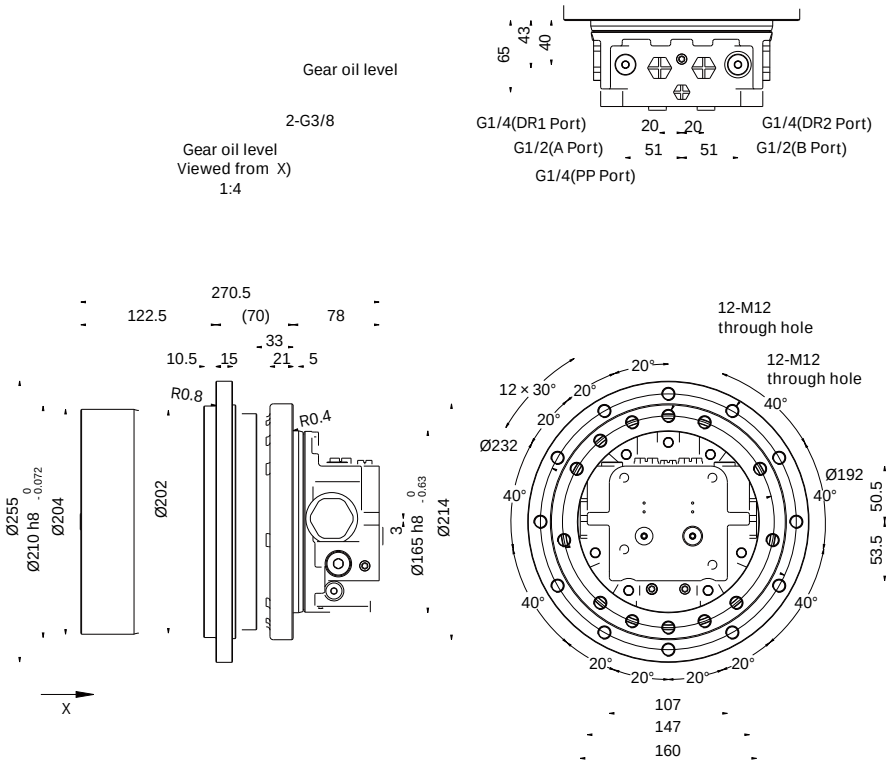


Special inch non - sealed pipe thread ori f ce details

Port (M)	H	L	D	D1	θ
G1/4	12	2.5	Ø15.6	Ø24	15°
G1/2	17	2.5	Ø22.6	Ø34	15°

Installation size

·HM4V22-RGTM50A



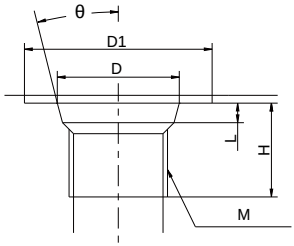
Inlet port	Outlet port	Rotation direction
B	A	Clockwise
A	B	Anti-clockwise

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

Port details

·HM4V22-RGTM50A

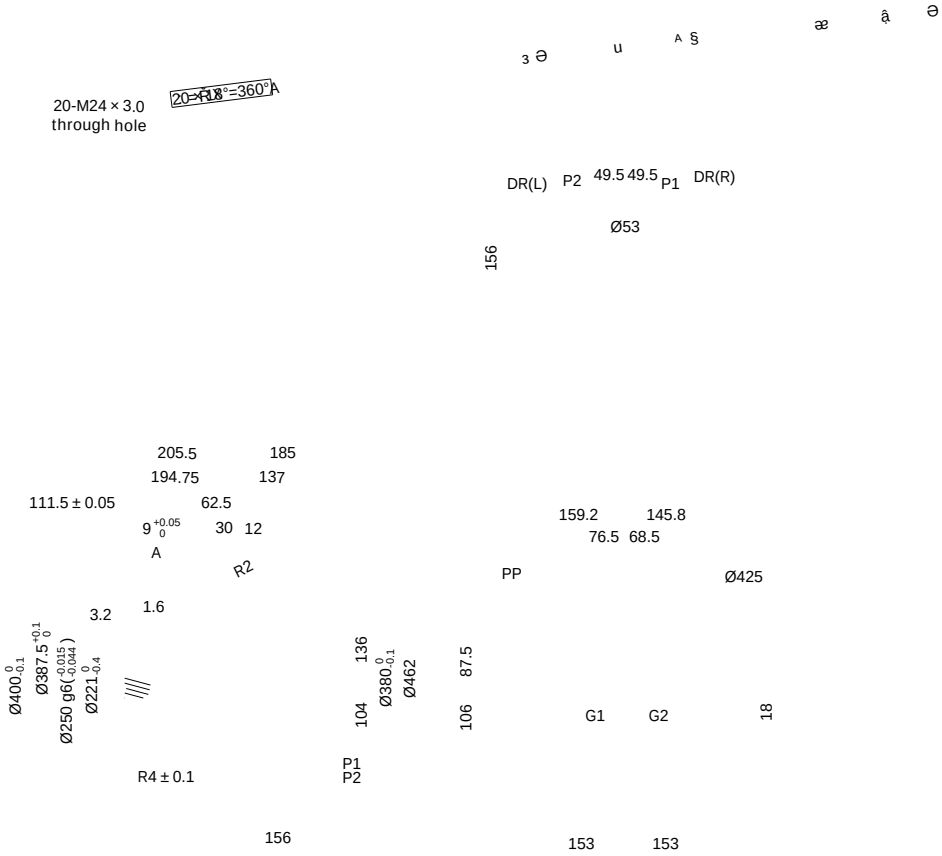
	Port Name	Port Size and Description
A	Inlet port and Delivery port	G1/2 depth 17mm
B		
DR1 DR2	Housing drain port	G1/4 depth 12 mm
PP	Two speed switch pilot oil port	G1/4 depth 12 mm



Special inch non - sealed pipe thread ori f ce details

Port (M)	H	L	D	D1	θ
G1/4	12	2.5	Ø15.6	Ø24	15°
G1/2	17	2.5	Ø22.6	Ø34	15°

Installation size



Inlet port	Outlet port	Rotation direction
P1	P2	Clockwise
P2	P1	Anti-clockwise

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

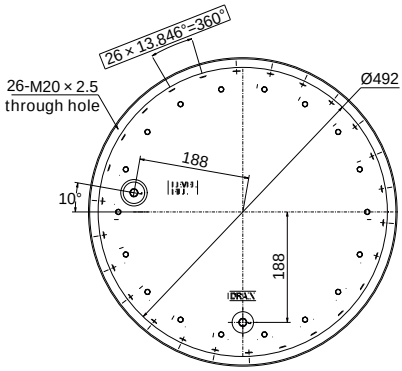
Port details

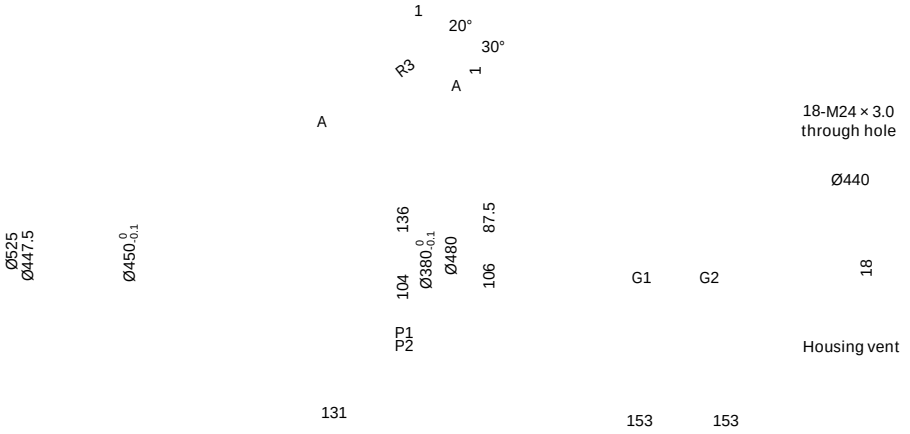
·HM4V 290(Single motor)

	Port Name	Port Size and Description
P_1	Inlet port and Delivery port	G1 depth 23 mm
P_2		
DRR DRL	Housing drain port	G1/2 depth 18 mm
PP	Two speed switch pilot oil port	G1/4 depth 15 mm
G1 G2	Pressure Measureing	G1/4 depth 15 mm

Special inch non - sealed pipe thread ori f ce details

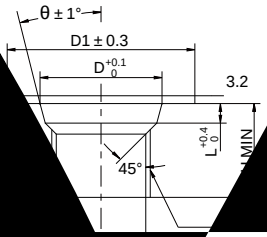
Port (M)	H	L	D	D1	θ
G1	23	3.5	35.8	53	15
G1/2	18	2.5	22.6	34	15
G1/4-13	15	2.5	15.6	-	15
G1/4-13	15	2.5	15.6	24	15

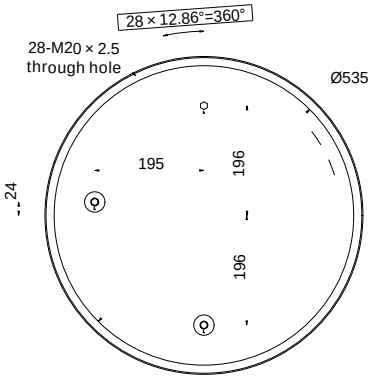


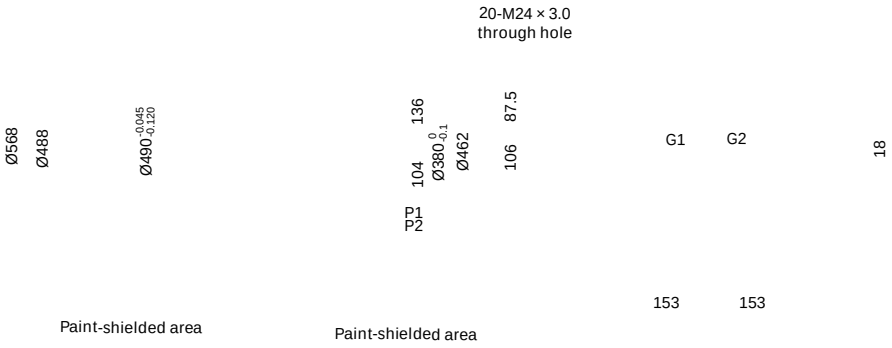


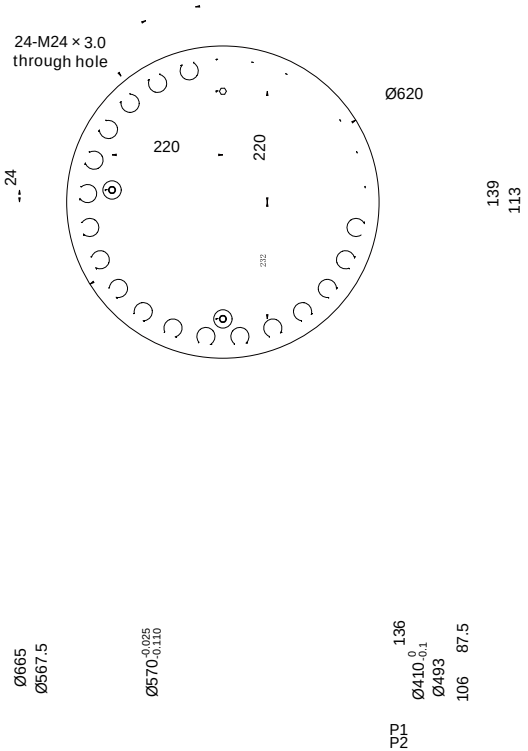
Inlet port	Outlet port	Rotation direction
P1	P2	Anti-clockwise
P2	P1	Clockwise

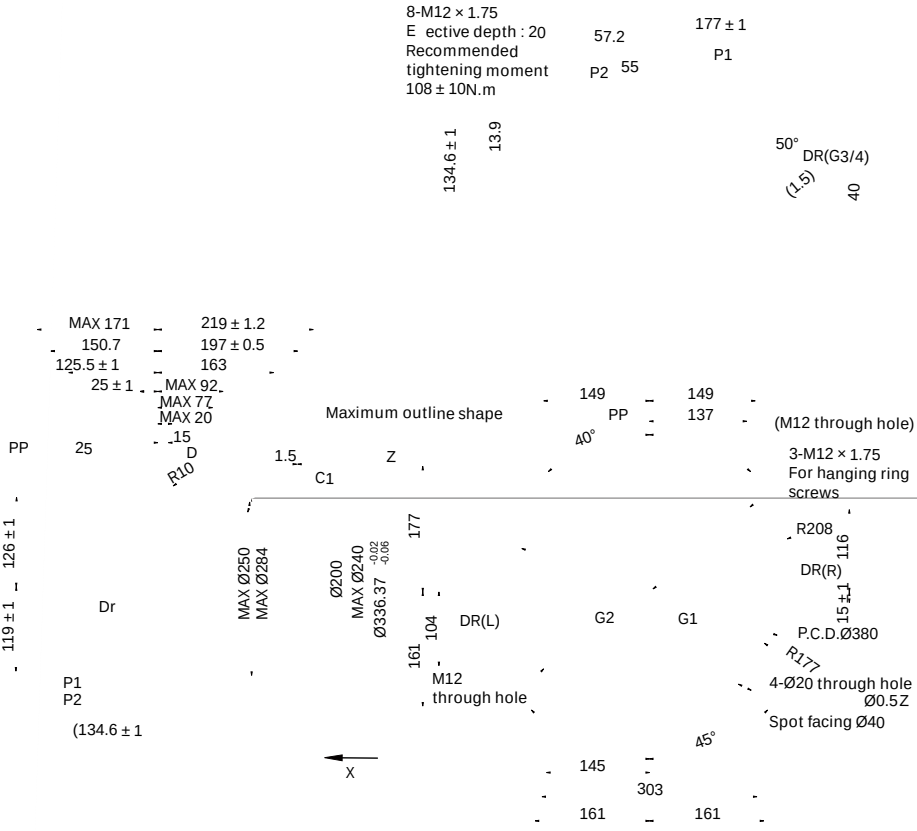
Note: The rotation direction is looked from the bottom of reducer


θ ± 1°
D1 ± 0.3
D +0.1 0
3.2
L +0.4 0
L MIN
45°

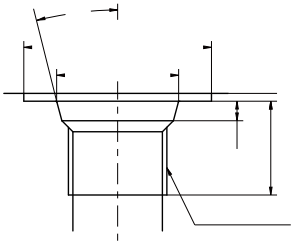

28 × 12.86°=360°
28-M20 × 2.5
through hole
Ø535
195
196
196
24


20-M24 × 3.0
through hole
Ø568
Ø488
Ø490 -0.045 -0.120
136
104
Ø380 0 -0.1
Ø462
87.5
106
G1
G2
18
P1
P2
153
153
Paint-shielded area
Paint-shielded area


24-M24 × 3.0
through hole
Ø620
220
220
24
139
113
27-M24 × 3.0
through hole
Ø455
Ø665
Ø567.5
Ø570 0.025 0.110
136
Ø410 0.1
Ø493
87.5
106
G1
G2
18
P1
P2
Housing vent
Paint-shielded area
Paint-shielded area
153
153

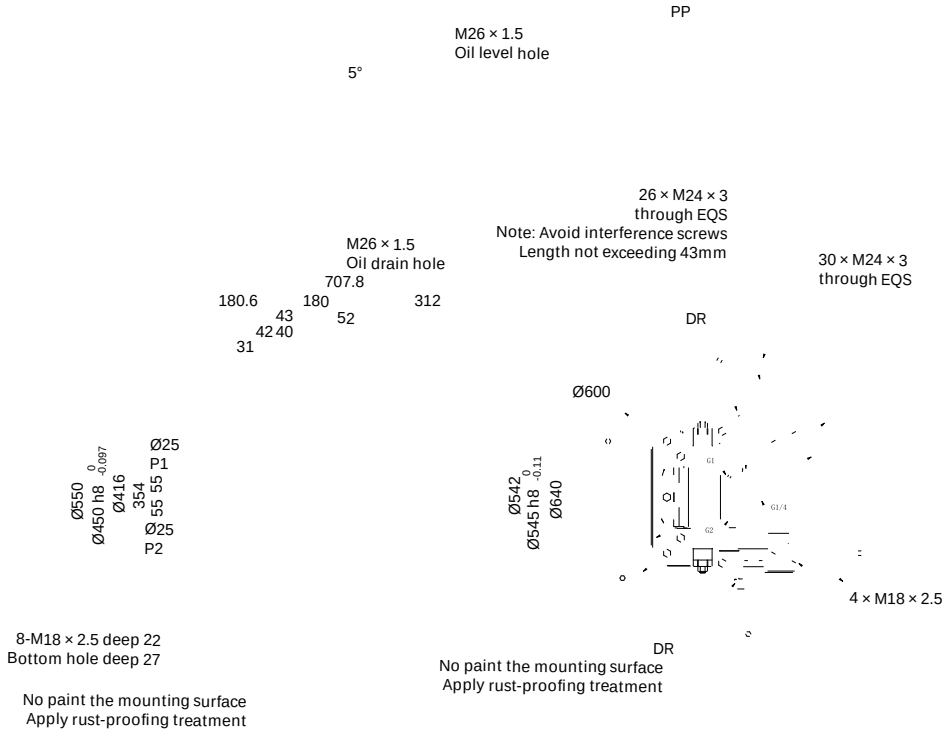

8-M12 × 1.75
E ective depth : 20
Recommended
tightening moment
108 ± 10N.m
57.2
55
P2
177 ± 1
P1
134.6 ± 1
13.9
50°
DR(G3/4)
(1.5)
40
MAX 171
150.7
125.5 ± 1
25 ± 1
219 ± 1.2
197 ± 0.5
163
MAX 92
MAX 77
MAX 20
15
PP
25
D
R10
1.5
C1
Z
Maximum outline shape
149
PP
137
149
40°
(M12 through hole)
3-M12 × 1.75
For hanging ring
screws
R208
116
DR(R)
15 ± 1
P.C.D.Ø380
R177
4-Ø20 through hole
Ø0.5Z
Spot facing Ø40
45°
126 ± 1
119 ± 1
Dr
P1
P2
(134.6 ± 1
MAX Ø250
MAX Ø284
Ø200
MAX Ø240
Ø336.37 -0.02 -0.06
177
104
DR(L)
161
M12
through hole
G2
G1
X
145
303
161
161

	Port Name	Port Size and Description
P_1	Inlet port and Delivery port	SAE 1''
P_2		
DRR DRL	Housing drain port	G3/4 depth 12 mm
PP	Two speed switch pilot oil port	G1/4 depth 15 mm
G1 G2	Pressure Measureing	G1/4 depth 12 mm



Special inch non - sealed pipe thread ori f ce details

Port (M)	H	L	D	D1	θ
SAE 1''	-	-	-	-	-
G3/4-20	20	3.5	30.8	45	15
G1/4-13	15	2.5	15.6	24	15
G1/4-13	15	2.5	15.6	24	15


PP
M26 × 1.5
Oil level hole
5°
26 × M24 × 3
through EQS
Note: Avoid interference screws
Length not exceeding 43mm
M26 × 1.5
Oil drain hole
30 × M24 × 3
through EQS
707.8
180.6
180
312
43
52
42 40
31
DR
Ø600
Ø25
P1
Ø550
Ø450 h8 0 -0.097
Ø416
354
55 55
Ø25
P2
Ø542
Ø545 h8 0 -0.11
Ø640
G1
G1/4
G2
4 × M18 × 2.5
8-M18 × 2.5 deep 22
Bottom hole deep 27
No paint the mounting surface
Apply rust-proofing treatment
DR
No paint the mounting surface
Apply rust-proofing treatment

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