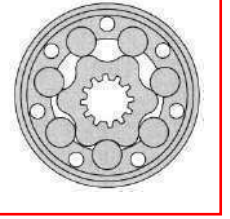




# Model PHDM5



The PHDM5 series of orbital hydraulic motors is a type of hydraulic actuator that converts hydraulic energy into mechanical energy for driving machinery. It is known for its compact design, high efficiency, and long service life.

The motors have a high starting torque and smooth operation, making them suitable for a wide range of applications, including mobile equipment, material handling, and construction machinery. They come in a range of displacements and operating pressures, with a variety of mounting options to meet specific application requirements.

The motors are built with high-quality materials, such as a cast iron or aluminum body and precision-machined crankshaft, ensuring durability and reliability. Safety features, such as pressure relief valves, are also included for safe operation.

In summary, the PHDM5 series of orbital hydraulic motors offer a versatile solution for hydraulic power needs with their compact design and reliable performance.

## PHDM5 SERIES TECHNICAL SPECIFICATIONS

		PHDM5-315 PHDM5S-315 PHDM5W-315	PHDM5-400 PHDM5S-400 PHDM5W-400	PHDM5-500 PHDM5S-500 PHDM5W-500	PHDM5-630 PHDM5S-630 PHDM5W-630	PHDM5-800 PHDM5S-800 PHDM5W-800	PHDM5-985 PHDM5S-985 PHDM5W-985
Displacement	ml/r cc [in <sup>3</sup> ./rev.]	314.9 [19.22]	399.7 [24.39]	496.6 [30.30]	617.8 [37.70]	787.4 [48.05]	969.1 [59.14]
Max.Pressure.Drop	cont. bar [psi]	200 [2900]	200 [2900]	200 [2900]	180 [2610]	160 [2320]	140 [2030]
	int. bar [psi]	240 [3480]	240 [3480]	240 [3480]	210 [3045]	180 [2610]	160 [2320]
	peak. bar [psi]	280 [4061]	280 [4061]	280 [4061]	240 [3480]	210 [3045]	180 [2610]
Max.Torque	cont. n.m [Lb.in]	873 [7726]	1108 [9806]	1385 [12258]	1570 [13895]	1773 [15692]	1900 [16816]
	int. n.m [Lb.in]	1119 [9903]	1440 [12745]	1783 [15780]	1951 [17267]	2122 [18781]	2133 [18878]
	peak. n.m [Lb.in]	1293 [11444]	1650 [14603]	2060 [18232]	2249 [19905]	2481 [21958]	2399 [21232]
Max.Speed	cont. r/min	475	375	300	240	190	150
Max.Flow	cont. L/min [G/min]	150 [39.62]	150 [39.62]	150 [39.62]	150 [39.62]	150 [39.62]	150 [39.62]
Max.Output.Power	cont. kw [hp]	32 [42.9]	32 [42.9]	32 [42.9]	32 [42.9]	32 [42.9]	24 [32.1]
Weight	kg [lbs]	30.7 [67.68]	31.5 [69.44]	32.4 [71.43]	33.6 [74.07]	35.2 [77.60]	37.2 [82.01]

Intermittent operation the permissible values may occur for max. 10% of every minute

Peak load: the permissible values may occur for max. 1% of every minute



# PERFORMANCE DATA

## PHDM5 315 (314.9cc)

		[507]	[1015]	[1450]	[2030]	[2610]	[2900]	[3480]	[PSI]
		35	70	100	140	180	200	240	BAR
[GPM]	[2.64]	[1168]	[2460]	[3681]	[5098]	[6204]	[7071]	[8363]	
	10	132	278	416	576	701	799	945	
L/min	[5.28]	[1283]	[2628]	[3894]	[5319]	[6584]	[7487]	[8948]	TORQUE [LB-IN] TORQUE N·M SPEED RPM
	20	145	297	440	601	744	846	1011	
FLOW	[13.20]	[1247]	[2610]	[3885]	[5496]	[6815]	[7824]	[9302]	
	50	141	295	439	618	770	884	1051	
FLOW	[19.81]	[1194]	[2540]	[3832]	[5372]	[6823]	[7859]	[9355]	
	75	135	287	433	607	771	888	1057	
FLOW	[26.42]	[1141]	[2487]	[3779]	[5319]	[6770]	[7832]	[9266]	
	100	129	281	427	601	765	885	1047	
Max cont.	[33.02]	[1026]	[2389]	[3699]	[5239]	[6682]	[7700]	[9142]	
	125	116	270	418	592	755	870	1033	
Max cont.	[39.62]	[955]	[2301]	[3637]	[5142]	[6593]	[7576]	[9018]	
	150	108	260	411	581	745	856	1019	
Max int.	[42.27]	[893]	[2239]	[3593]	[5089]	[6523]	[7487]	[8948]	Max cont.
	160	101	253	406	575	737	846	1011	
Max int.	[52.83]	[681]	[2079]	[3442]	[4956]	[6337]	[7284]	[8753]	Max int.
	200	77	235	389	560	716	823	989	

## PHDM5 400(399.7cc)

		[507]	[1015]	[1450]	[2030]	[2610]	[2900]	[3480]	[PSI]
		35	70	100	140	180	200	240	BAR
[GPM]	[2.64]	[1548]	[3248]	[4797]	[6549]	[8169]	[9293]	[10912]	
	10	175	367	542	740	923	1050	1233	
L/min	[5.28]	[1655]	[3363]	[4982]	[6885]	[8532]	[9726]	[11364]	TORQUE [LB-IN] TORQUE N·M SPEED RPM
	20	187	380	563	778	964	1099	1284	
FLOW	[13.20]	[1690]	[3398]	[5089]	[7107]	[8779]	[10010]	[12072]	
	50	191	384	575	803	992	1131	1364	
FLOW	[19.81]	[1646]	[3327]	[5036]	[7071]	[8806]	[10027]	[12090]	
	75	186	376	569	799	995	1133	1366	
FLOW	[26.42]	[1451]	[3248]	[5009]	[6983]	[8744]	[10001]	[12028]	
	100	164	367	566	789	988	1130	1359	
Max cont.	[33.02]	[1407]	[3159]	[4921]	[6885]	[8620]	[9939]	[11930]	
	125	159	357	556	778	974	1123	1348	
Max cont.	[39.62]	[1336]	[3044]	[4717]	[6761]	[8514]	[9833]	[11736]	
	150	151	344	533	764	962	1111	1326	
Max int.	[46.23]	[1203]	[2920]	[4673]	[6620]	[8355]	[9665]	[11629]	Max cont.
	175	136	330	528	748	944	1092	1314	
Max int.	[52.83]	[1000]	[2796]	[4522]	[6505]	[8178]	[9523]	[11452]	Max int.
	200	113	316	511	735	924	1076	1294	

## PHDM5 500(496.6cc)

		[507]	[1015]	[1450]	[2030]	[2610]	[2900]	[3480]	[PSI]
		35	70	100	140	180	200	240	BAR
[GPM]	[2.64]	[2053]	[3965]	[5903]	[8133]	[10089]	[11470]	[13630]	
	10	232	448	667	919	1140	1296	1540	
L/min	[5.28]	[2079]	[4248]	[6257]	[8505]	[10443]	[11815]	[14054]	TORQUE [LB-IN] TORQUE N·M SPEED RPM
	20	235	480	707	961	1180	1335	1588	
FLOW	[13.20]	[2035]	[4239]	[6426]	[8691]	[10771]	[12284]	[14780]	
	50	230	479	726	982	1217	1388	1670	
FLOW	[19.81]	[1973]	[4221]	[6372]	[8735]	[10921]	[12506]	[14975]	
	75	223	477	720	987	1234	1413	1692	
FLOW	[26.42]	[1929]	[4159]	[6345]	[8700]	[10930]	[12479]	[14922]	
	100	218	470	717	983	1235	1410	1686	
Max cont.	[33.02]	[1867]	[4097]	[6292]	[8594]	[10851]	[12382]	[14798]	
	125	211	463	711	971	1226	1399	1672	
Max cont.	[39.62]	[1708]	[3938]	[6133]	[8549]	[10603]	[12116]	[14718]	Max cont.
	150	193	445	693	966	1198	1369	1663	
Max int.	[46.23]	[1540]	[3779]	[6027]	[8452]	[10496]	[11921]	[14541]	Max int.
	175	174	427	681	955	1186	1347	1643	
Max int.	[52.83]	[1363]	[3584]	[5735]	[8257]	[10328]	[11744]	[14391]	Max int.
	200	154	405	648	933	1167	1327	1626	

## PHDM5 630(617.8cc)

		[507]	[870]	[1305]	[1740]	[2175]	[2610]	[3045]	[PSI]
		35	60	90	120	150	180	210	BAR
[GPM]	[2.64]	[2301]	[4283]	[6664]	[9027]	[10399]	[12709]	[14639]	
	10	260	484	753	1020	1175	1436	1654	
L/min	[5.28]	[2363]	[4531]	[6885]	[9036]	[10789]	[13187]	[15294]	TORQUE [LB-IN] TORQUE N·M SPEED RPM
	20	267	512	778	1021	1219	1490	1728	
FLOW	[13.20]	[2372]	[4549]	[7124]	[9328]	[11187]	[13798]	[16046]	
	50	268	514	805	1054	1264	1559	1813	
FLOW	[19.81]	[2212]	[4496]	[7080]	[9187]	[11089]	[13780]	[16117]	
	75	250	508	800	1038	1253	1557	1821	
FLOW	[26.42]	[2168]	[4416]	[7027]	[8965]	[11072]	[13736]	[16126]	
	100	245	499	794	1013	1251	1552	1822	
Max cont.	[33.02]	[2062]	[4230]	[6868]	[8788]	[10957]	[13612]	[16002]	
	125	233	478	776	993	1238	1538	1808	
Max cont.	[39.62]	[1964]	[4062]	[6700]	[8717]	[10912]	[13541]	[15816]	Max cont.
	150	222	459	757	985	1233	1530	1787	
Max int.	[46.23]	[1725]	[3982]	[6531]	[8629]	[10665]	[13426]	[15656]	Max int.
	175	195	450	738	975	1205	1517	1769	
Max int.	[52.83]	[1495]	[3850]	[6160]	[8355]	[10505]	[13214]	[15453]	Max int.
	200	169	435	696	944	1187	1493	1746	



# PERFORMANCE DATA

PHDM5

## PHDM5 800(787.4cc)

	[362] 25	[725] 50	[1160] 80	[1450] 100	[1885] 130	[2320] 160	[2610] 180	[PSI] BAR
(GPM)	[2.64]	[2416] <b>273</b>	[4912] <b>555</b>	[7222] <b>816</b>	[9523] <b>1076</b>	[12222] <b>1381</b>	[14895] <b>1683</b>	[16657] <b>1882</b>
L/min	10	11	10	10	9	8	8	7
	[5.28]	[2451] <b>277</b>	[4956] <b>561</b>	[7354] <b>831</b>	[10001] <b>1130</b>	[12665] <b>1431</b>	[15515] <b>1753</b>	[17347] <b>1960</b>
	20	23	22	22	21	20	18	16
	[13.20]	[2504] <b>283</b>	[5062] <b>572</b>	[7443] <b>841</b>	[10107] <b>1142</b>	[12727] <b>1438</b>	[15577] <b>1760</b>	[17409] <b>1967</b>
	50	61	60	58	57	55	53	49
Flow	[19.81]	[2336] <b>264</b>	[5044] <b>570</b>	[7434] <b>840</b>	[10134] <b>1145</b>	[12745] <b>1440</b>	[15541] <b>1756</b>	[17365] <b>1962</b>
	75	93	92	91	89	85	82	78
	[26.42]	[2186] <b>247</b>	[4921] <b>556</b>	[7310] <b>826</b>	[9921] <b>1121</b>	[12594] <b>1423</b>	[15373] <b>1737</b>	[17267] <b>1951</b>
	100	124	123	122	120	117	113	107
	[33.02]	[2106] <b>238</b>	[4655] <b>526</b>	[7169] <b>810</b>	[9726] <b>1099</b>	[12417] <b>1403</b>	[15125] <b>1709</b>	[17188] <b>1942</b>
	125	156	155	153	150	145	141	135
Max cont.	[39.62]	[2053] <b>232</b>	[4575] <b>517</b>	[7027] <b>794</b>	[9585] <b>1083</b>	[12187] <b>1377</b>	[14913] <b>1685</b>	[17046] <b>1926</b>
	150	188	186	184	181	177	172	166
	[46.23]	[1867] <b>211</b>	[4381] <b>495</b>	[6903] <b>780</b>	[9390] <b>1061</b>	[11983] <b>1354</b>	[14771] <b>1669</b>	[16842] <b>1903</b>
	175	251	249	247	244	241	236	229
Max int.	[52.83]	[1717] <b>194</b>	[4071] <b>460</b>	[6655] <b>752</b>	[9249] <b>1045</b>	[11851] <b>1339</b>	[14621] <b>1652</b>	[15993] <b>1807</b>
	200	302	301	300	298	293	288	282

Max cont.  
Max int.

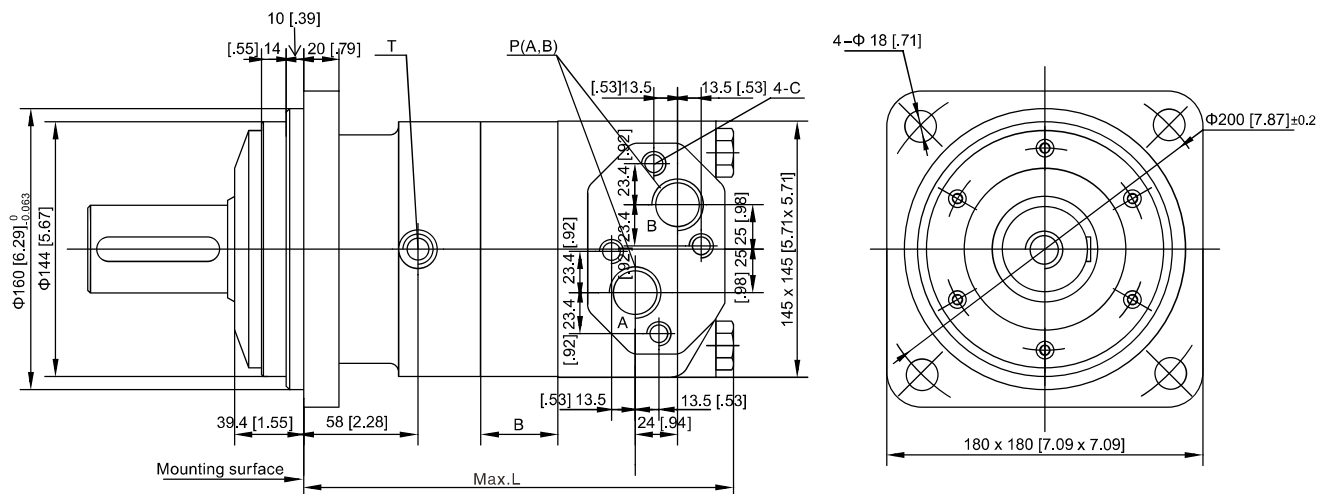
## PHDM5 985(969.1cc)

	[362] 25	[725] 50	[1015] 70	[1450] 100	[2030] 140	[2320] 160	[PSI] BAR
(GPM)	[2.64]	[2699] <b>305</b>	[5549] <b>627</b>	[8417] <b>951</b>	[12134] <b>1371</b>	[17135] <b>1936</b>	[19577] <b>2212</b>
L/min	10	9	9	9	8	7	6
	[5.28]	[2770] <b>313</b>	[5611] <b>634</b>	[8470] <b>957</b>	[12214] <b>1380</b>	[17152] <b>1938</b>	[19666] <b>2222</b>
	20	29	28	27	26	23	21
	[13.20]	[2823] <b>319</b>	[5673] <b>641</b>	[8594] <b>971</b>	[12320] <b>1392</b>	[17462] <b>1973</b>	[19754] <b>2232</b>
	50	48	47	46	44	42	39
Flow	[19.81]	[2752] <b>311</b>	[5567] <b>629</b>	[8549] <b>966</b>	[12346] <b>1395</b>	[17356] <b>1961</b>	[19719] <b>2228</b>
	75	74	73	72	69	67	64
	[26.42]	[2681] <b>303</b>	[5496] <b>621</b>	[8514] <b>962</b>	[12284] <b>1388</b>	[17276] <b>1952</b>	[19436] <b>2196</b>
	100	100	99	97	95	92	88
	[33.02]	[2628] <b>297</b>	[5407] <b>611</b>	[8452] <b>955</b>	[12205] <b>1379</b>	[17223] <b>1946</b>	[19268] <b>2177</b>
	125	126	125	123	120	116	112
Max cont.	[39.62]	[2407] <b>272</b>	[5213] <b>589</b>	[8328] <b>941</b>	[11851] <b>1339</b>	[17011] <b>1922</b>	[19135] <b>2162</b>
	150	152	151	149	147	143	136
	[46.23]	[2283] <b>258</b>	[5027] <b>568</b>	[8195] <b>926</b>	[11594] <b>1310</b>	[16683] <b>1885</b>	[18710] <b>2114</b>
	175	178	176	174	170	165	158
Max int.	[52.83]	[1442] <b>163</b>	[4443] <b>502</b>	[7514] <b>849</b>	[10974] <b>1240</b>	[15816] <b>1787</b>	[17621] <b>1991</b>
	200	245	242	238	234	230	223

Max cont.  
Max int.

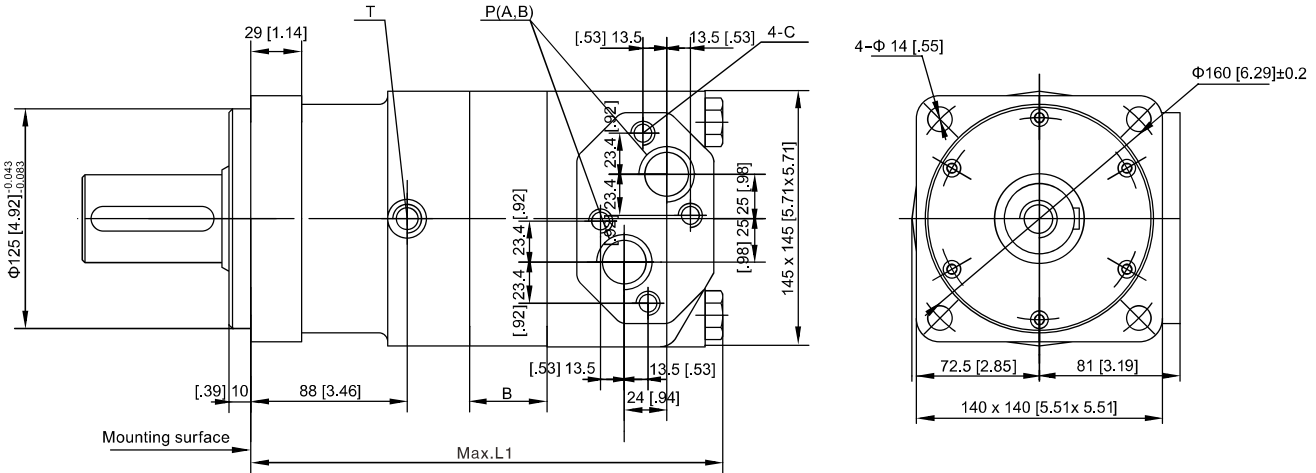
## DIMENSIONS AND MOUNTING

### A: Square Flange

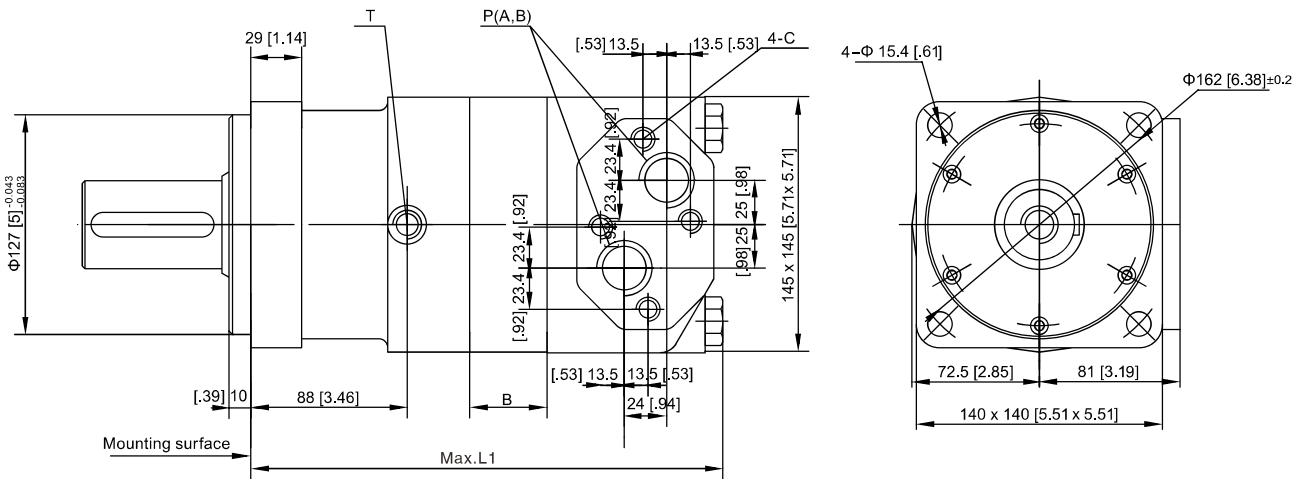


# DIMENSIONS AND MOUNTING

A1 : Square Flange



A7 : Square Flange



PHDM5





## DIMENSIONS AND MOUNTING

	PHDM5-315	PHDM5-400	PHDM5-500	PHDM5-630	PHDM5-800	PHDM5-985
L	216 [8.50]	223 [8.78]	231 [ 9.09]	241 [9.49]	255 [10.04]	270 [10.63]
L1	246 [9.68]	253 [9.96]	261 [10.27]	271 [10.67]	285 [11.22]	300 [11.81]
B	19 [.75]	26 [1.02]	34 [1.34]	44 [1.73]	58 [2.28]	73 [2.87]

Port Codes	Ports (A,B)	Mounting Thread (C)	Drain Connection (T)
Y	G1 (18)	M12(12)	G1/4(12)
Y1	G3/4(18)	M12(12)	G1/4(12)
Y2	M33 × 2(18)	M12(12)	M14 × 1.5(12)
Y3	M27 × 2(18)	M12(12)	M14 × 1.5(12)
Y8	1 5/16–12UN(18)	—	9/16–18UNF(12)

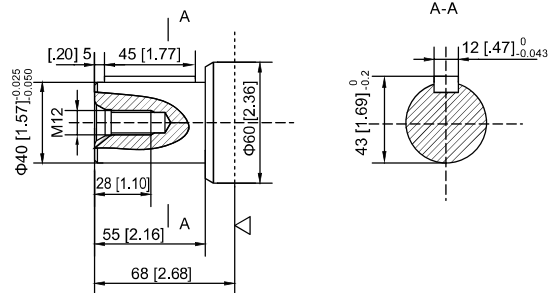
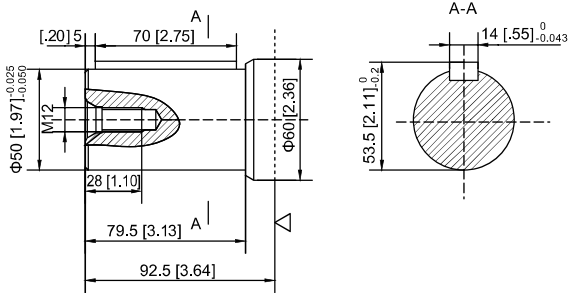
P(A, B)—Ports, C—Mounting Thread ( —Indicates no this thread ) , T—Drain connection

# DIMENSIONS AND MOUNTING

Only match A1,A7 flange

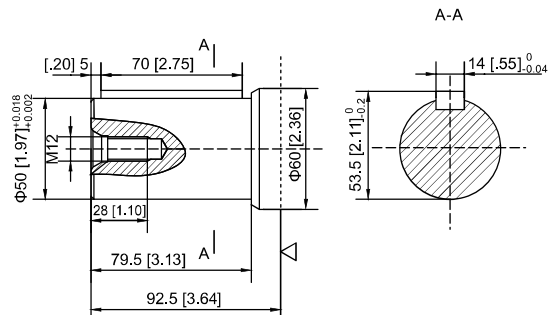
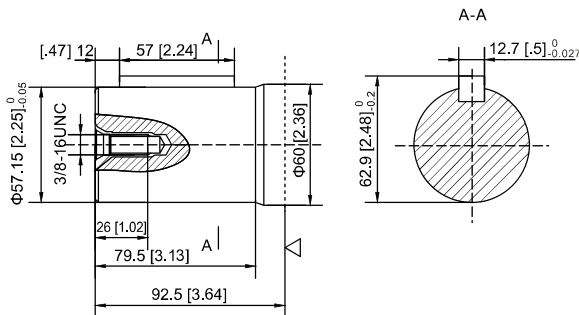
P :  $\Phi$ [1.97] Cylindrical shaft, parallel key [.55] x [.35] x [2.75]  
 $\Phi$ 50 Cylindrical shaft, parallel key 14 x 9 x 70

P1 :  $\Phi$ [1.57] Cylindrical shaft, parallel key [.47] x [.31] x [1.77]  
 $\Phi$ 40 Cylindrical shaft, parallel key 12 x 8 x 45



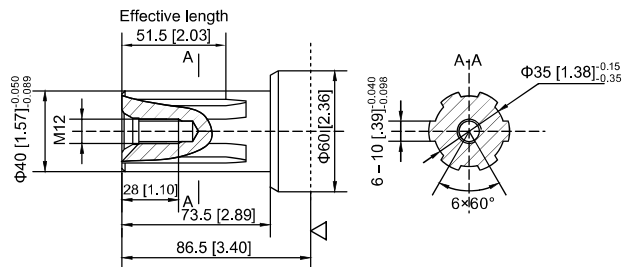
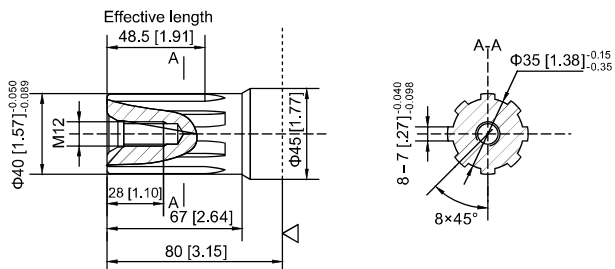
P12 :  $\Phi$ [2.25] Cylindrical shaft, parallel key [.5] x [.5] x [2.24]  
 $\Phi$ 57.15 Cylindrical shaft, parallel key 12.7 x 12.7 x 57

P99 :  $\Phi$ [1.97] Cylindrical shaft, parallel key [.55] x [.35] x [2.75]  
 $\Phi$ 50 Cylindrical shaft, parallel key 14 x 9 x 70



H4 :  $\Phi$ [1.57] Splined shaft, 8 – [1.57] x [1.38] x [.27]  
 $\Phi$ 40 Splined shaft, 8–40 x 35 x 7

H5 :  $\Phi$ [1.57] Splined shaft, 6 – [1.57] x [1.38] x [.39]  
 $\Phi$ 40 Splined shaft, 6–40 x 35 x 10



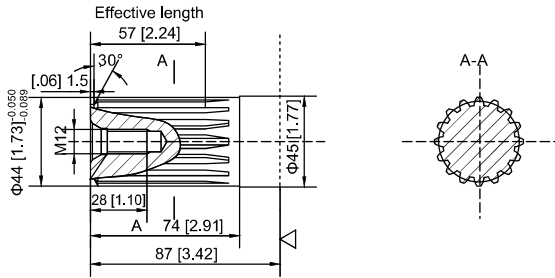
PHDM5



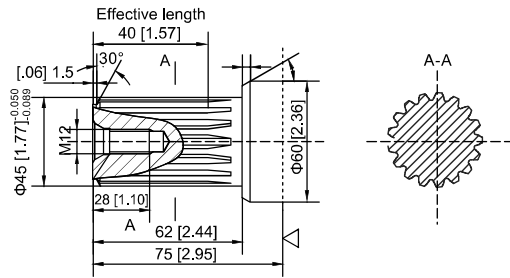
## DIMENSIONS AND MOUNTING

### Only Match A1,A7 Flange

K2 :  $\Phi[1.73]$  Involute splined shaft m2.5 z16 a=30°  
 $\Phi44$  involute splined shaft m2.5 z16 a=30°



K3 :  $\Phi[1.77]$  Involute splined shaft m2.5 z17 a=30°  
 $\Phi45$  involute splined shaft m2.5 z17 a=30°



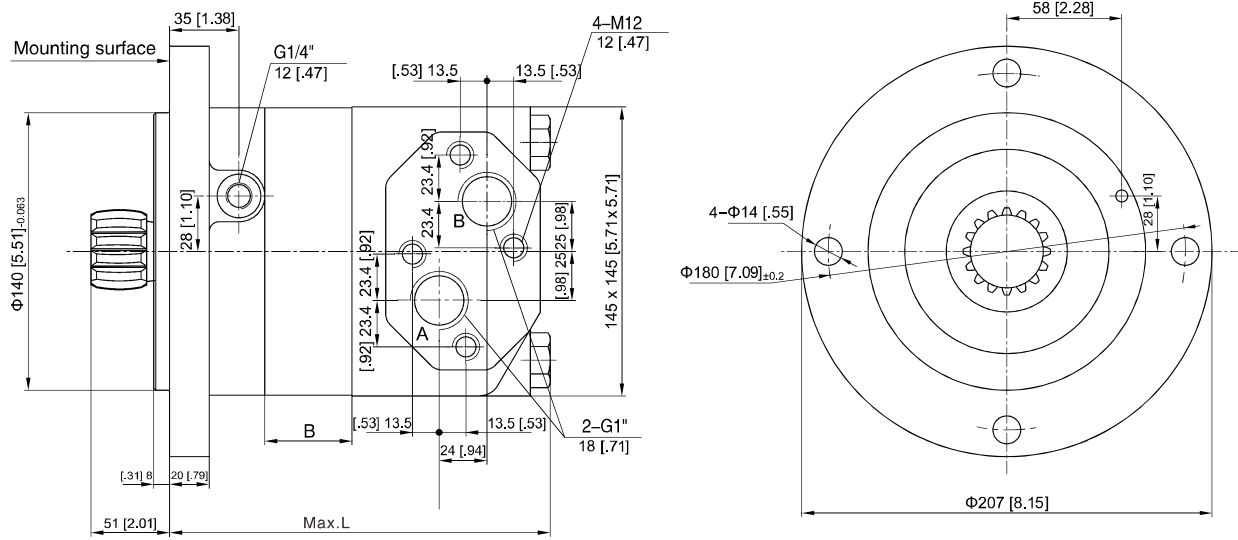
Note: Flange with A type, hydraulic motor shaft from the mounting surface to increase 30mm





# DIMENSIONS AND MOUNTING

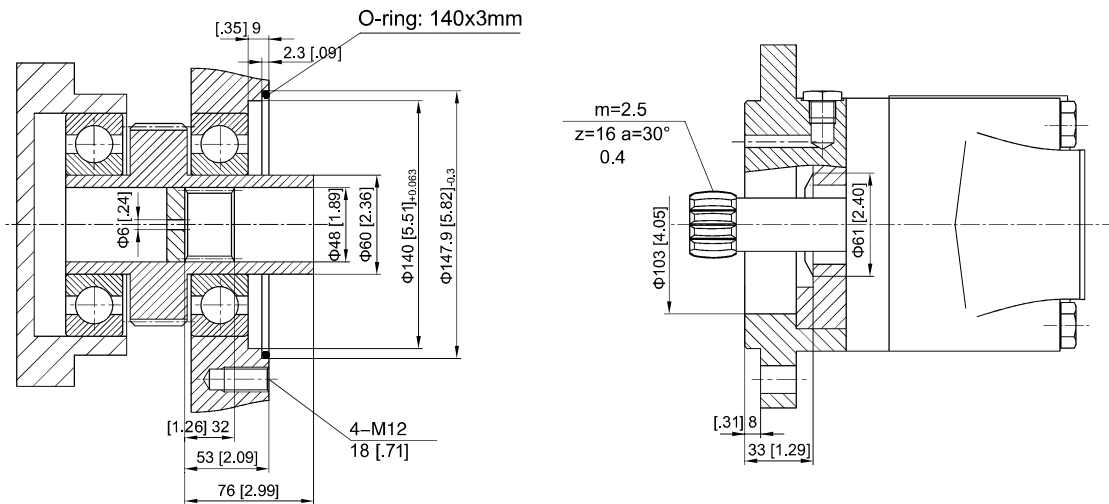
PHDM5S



	PHDM5S-315	PHDM5S-400	PHDM5S-500	PHDM5S-630	PHDM5S-800	PHDM5S-985
L	170 [6.69]	177 [6.97]	185 [7.28]	195 [7.68]	209 [8.23]	224 [8.82]
B	19 [0.75]	26 [1.02]	34 [1.34]	44 [1.73]	58 [2.28]	73 [2.87]

## PHDM5S SERIES SHAFT VERSION

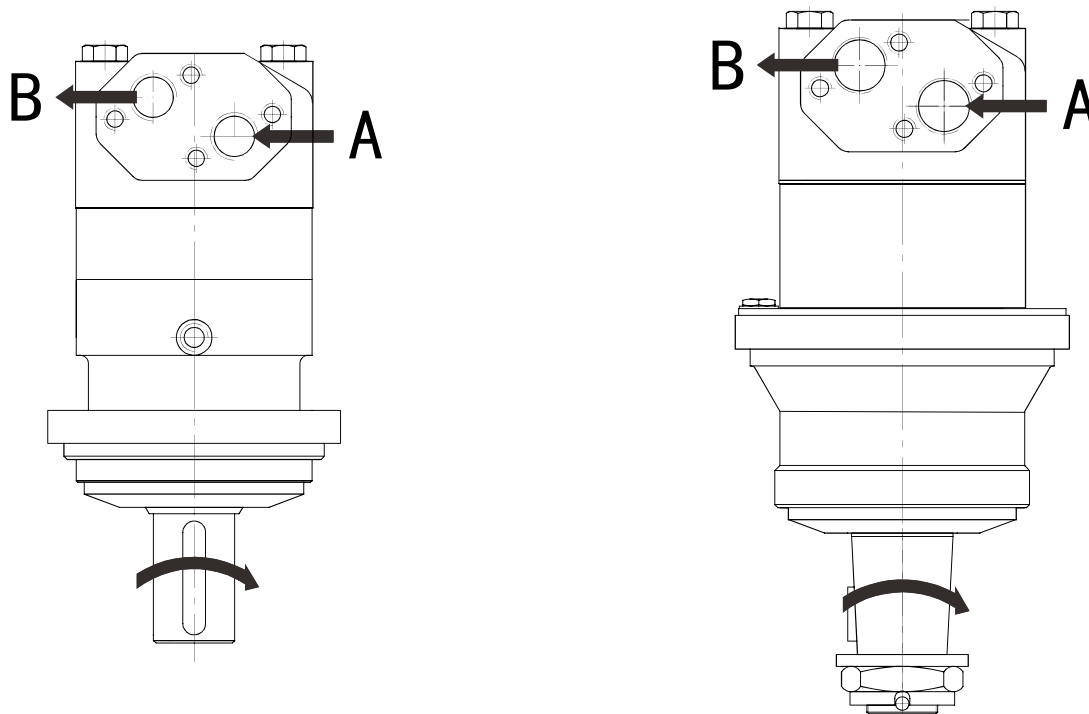
### Component Dimensions



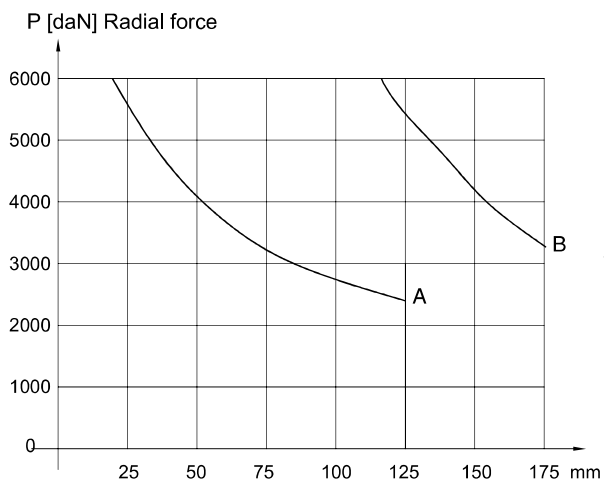
# PHDM5 SERIES MOTOR

Direction of shaft rotation: Standard

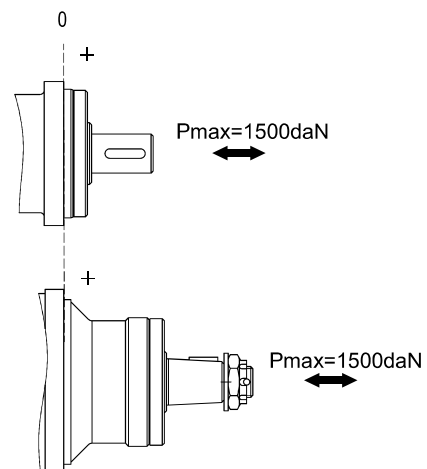
When facing shaft end of motor, shaft to rotate:  
 Clockwise when port "A" is pressurized.  
 Counter-clockwise port "B" is pressurized.



## PERMISSIBLE SHAFT LOADS



A--PHDM5  
 B--PHDM5W





## ORDERING INFORMATION

1	2	3	4	5	6	7
PHDM5	—				—	—

Pos.1	2	3		4	5		6		7						
					Code	Ports									
Series	Disp	Output		Flange		Ports(A,B)(deep)	Drain port T(deep)	Special features		Rotation direction					
PHDM5	315	P	Φ[1.97] Cylindrical shaft, parallel key [.55] x [.35] x [2.75] Φ50 Cylindrical shaft, parallel key 14 × 9 × 70		A	4-Φ[.71] Square flange, pilot Φ[6.29] 4-Φ 18 Square flange, pilot Φ 160	Y	G1(18)	G1/4(12)	Omit	Standard	Omit	Standard		
		P1	Φ[1.57] Cylindrical shaft, parallel key [.47] x [.31] x [1.77] Φ40 Cylindrical shaft, parallel key 12 × 8 × 45												
	400	P12	Φ[2.25] Cylindrical shaft, parallel key [.5] x [.5] x [2.24] Φ57.15 Cylindrical shaft, parallel key 12.7 × 12.7 × 57				A1	4-Φ[.55] Square flange, pilot Φ[4.92] 4-Φ 14 Square flange, pilot Φ 125	Y1					G3/4(18)	G1/4(12)
		P99	Φ[1.97] Cylindrical shaft, parallel key [.55] x [.35] x [2.75] Φ50 Cylindrical shaft, parallel key 14 × 9 × 70												
	630	H4	Φ[1.57] Splined shaft, 8 – [1.57] x [1.38] x [.27] Φ40 Splined shaft, 8-40 × 35 × 7		A7	4-Φ[.61] Square flange, pilot Φ[5] 4-Φ 15.4 Square flange, pilot Φ 127	Y2	M33 × 2(18)	M14 × 1.5(12)					L	Opposite
		H5	Φ[1.57] Splined shaft, 6 – [1.57] x [1.38] x [.39] Φ40 Splined shaft, 6-40 × 35 × 10												
	800	K2	Φ[1.73] Involute splined shaft, m2.5, z16, a=30° Φ44 involute splined shaft, m2.5,z16,a=30°		A7	4-Φ[.61] Square flange, pilot Φ[5] 4-Φ 15.4 Square flange, pilot Φ 127	Y3	M27 × 2(18)	M14 × 1.5(12)						
		K3	Φ[1.77] Involute splined shaft, m2.5, z17, a=30° Φ45 involute splined shaft, m2.5,z17,a=30°												
985		K3	Φ[1.77] Involute splined shaft, m2.5, z17, a=30° Φ45 involute splined shaft, m2.5,z17,a=30°				1 5/16-12UN(18)	9/16-18UNF(12)							



## ORDERING INFORMATION

1	2	3	4	5	6	7
PHDM5W	—				—	

Pos.1	2	3		4	5		6		7			
Series	Disp	Output		Flange	Code	Ports		Special features		Rotation direction		
						Ports(A,B)(deep)	Drain port T(deep)					
PHDM5W	315	P	Φ[1.97] Cylindrical shaft, parallel key [.55] x [.35] x [2.75]		A	Y	G1(18)	G1/4(12)	Omit	Standard	Omit	Standard
	400		Φ 50 Cylindrical shaft, parallel key 14 x 9 x 70								4-Φ [.71] Square flange, pilot Φ[7.09]	L
	500	Z	Φ[2.36] Tapered shaft, taper 1:10, parallel key [.63] x [.39] x [1.26]									
	630		Φ 60 Tapered shaft, taper 1:10, parallel key 16 x 10 x 32		4-Φ 18 Square flange, pilot Φ 180							Opposite
	800											
	985											

1	2	3
PHDM5S	—	—

Pos.1	2	3	
Series	Disp	Special features	
PHDM5S	315	Omit	Standard
	400		
	500		
	630		
	800		
985			