

## GP Series Hydraulic Motors

### Options

- Flange connection
- Motor with needle roller bearing
- Side and rear ports
- Shaft seal for high and low pressure
- Straight, splined and tapered shafts
- Metric and BSPP ports
- Other special features

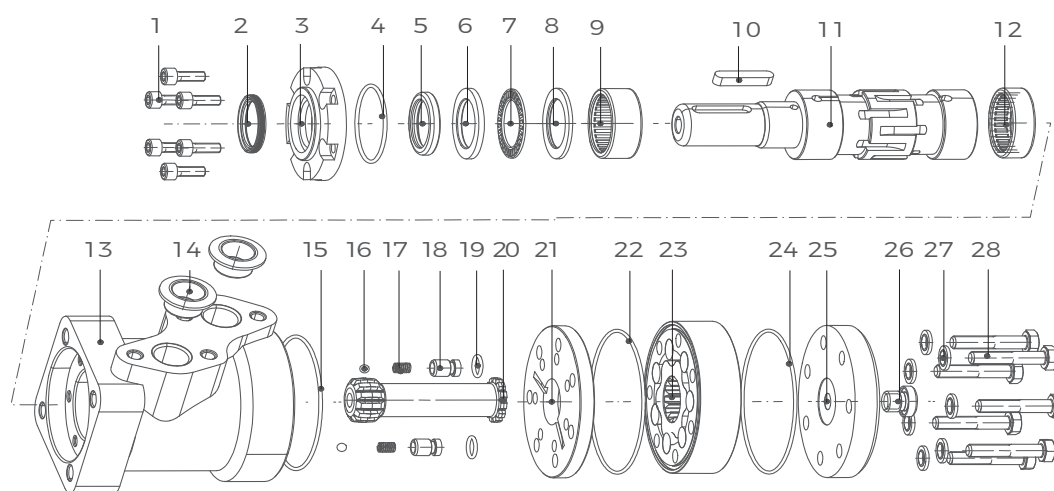
### Applications

- Conveyors
- Feeding mechanism of robots and manipulators
- Metal working machines
- Textile machines
- Agricultural machines
- Food industries
- Lawn mower



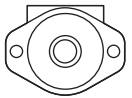
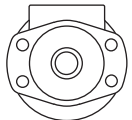
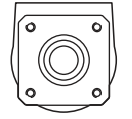

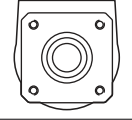









### General

Max. Displacement	cm <sup>3</sup> /rev [in <sup>3</sup> /rev]	623.6 [38.05]
Max. Speed	RPM	1815
Max. Torque	daNm [lb-in]	cont.: 50 [5144] int.: 64 [5565]
Max. Output	kW [HP]	12.8 [17.1]
Max. Pressure Drop	bar [PSI]	cont.:140 [2030] int.:175 [2540]
Max. Oil Flow	lpm [GPM]	75 [19.8]
Min. Speed	RPM	10
Pressure Fluid		Mineral based- HLP [DIN 51524] or HM [ISO 6743/4]
Temperature Range	°C [°F]	-40÷140 [-40÷284]
Optimal Viscosity range	mm <sup>2</sup> /s [SUS]	20÷75 [98÷347]
Filtration		ISO code 20/16 [Min. recommended fluid filtration of 25 microns]



1 Bolt	6 Bearing retainer	11 Output shaft	16 Steel ball	21 Spacer	26 Plug
2 Anti-dust ring	7 Flat bearing	12 Needle roller bearing	17 Spring	22 O-ring seal	27 Washer
3 Front cover	8 Bearing retainer	13 Housing	18 Check valve	23 Rotor and stator	28 Screw
4 O-ring seal	9 Needle roller bearing	14 Rubber plug	19 O-ring seal	24 O-ring seal	
5 Shaft seal	10 Parallel key	15 O-ring seal	20 Transmission shaft	25 Rear cover	

## Ordering Code

GP SERIES		DISP	FLANGE		SHAFT	PORTS		ROTATION	PAINT	FUNCTION			
CODE		DISP	CODE	FLANGE		CODE	PORTS		CODE	PAINT		CODE	FUNCTION
025		25cm <sup>3</sup> /rev [1.52in <sup>3</sup> /rev]		2-Hole SAE A, pilot Ø82.5×2.8		G1	G1/2, G1/4 manifold 4×M8		A	No Paint		A	Standard
032		32cm <sup>3</sup> /rev [1.95in <sup>3</sup> /rev]	A2			M1	M22×1.5M14×1.5, manifold 4×M8		B	Blue		N	Big radial force
040		40cm <sup>3</sup> /rev [2.44in <sup>3</sup> /rev]		4-Hole SAE A, pilot Ø82.5×2.8		U2	7/8-1UNF, 7/16-20UN manifold 4×5/16-18UNCF		C	Black		D	No case drain
050		49.5cm <sup>3</sup> /rev [3.02in <sup>3</sup> /rev]	A4			U1	7/8-14NPTF, 7/16 - 20UNF, manifold 4×5/16 - 18UNC		S	Silver grey		F	Free running
080		79.2cm <sup>3</sup> /rev [4.83in <sup>3</sup> /rev]		4-3/8-16UNC square, pilot Ø44.4×2.8		G2	PT (Rc) 1/2, PT (Rc) 1/4 manifold 4×M8					L	Low speed
100		99cm <sup>3</sup> /rev [6.04in <sup>3</sup> /rev]	H4									V	High temp.
125		123.8cm <sup>3</sup> /rev [7.55in <sup>3</sup> /rev]		4-M10 square, pilot Ø44.4×2.8		S1	Shaft Ø25, parallel key 8×7×32					S	Low temp.
160		158.4cm <sup>3</sup> /rev [9.66in <sup>3</sup> /rev]	H5			S2	Shaft Ø25.4, parallel key 6.35×6.35×31.75						
200		198cm <sup>3</sup> /rev [12.1in <sup>3</sup> /rev]				R1	Shaft Ø25.4, splined tooth SAE6B						
250		247.5cm <sup>3</sup> /rev [15.1in <sup>3</sup> /rev]				S3	Shaft Ø25.4, parallel key 6.35×6.35×31.75						
315		316.8cm <sup>3</sup> /rev [19.3in <sup>3</sup> /rev]				S4	Shaft Ø32, parallel key 10×8×45						
400		396cm <sup>3</sup> /rev [24.16in <sup>3</sup> /rev]				R2	Shaft Ø31.75, splined tooth 14 - DP 12/24						
500		495cm <sup>3</sup> /rev [30.2in <sup>3</sup> /rev]				R3	Long shaft Ø31.75,splined tooth 14 - DP 12/24						
630		623.6cm <sup>3</sup> /rev [38.05in <sup>3</sup> /rev]				S5	Shaft Ø31.75, parallel key 7.96×7.96×31.75						
						T1	Tapered shaft Ø28.56, parallel key B5×5×14						
						T2	Tapered shaft Ø31.75, paralle key 7.96×7.96×25.4						
									CODE	ROTATION			
									A	Standard			
									R	Opposite			

## Specifications

Technical data for GP with Ø25 and 1" straight and 1" splined and Ø28.56 tapered shaft

Type		GP25	GP32	GP40	GP50	GP80	GP100	GP125
Displacement, cm <sup>3</sup> /rev [in <sup>3</sup> /rev]		25[1.52]	32[1.95]	40[2.44]	49.5[3.02]	79.2[4.83]	99[6.04]	123.8[7.55]
Max. Speed,	Cont.	1600	1560	1500	1210	755	605	486
RPM	Int*	1815	1720	1750	1515	945	755	605
Max. Torque	Cont.	3.3[290]	4.3[380]	6.2[550]	9.4[835]	15.1[1340]	19.3[1710]	23.7[2100]
daNm [lb-in]	Int*	4.7[415]	6.1[540]	8.2[730]	11.9[1050]	19.5[1725]	23.7[2100]	29.8[2640]
	Peak**	6.7[595]	8.6[760]	10.7[950]	14.3[1285]	22.4[1985]	27.5[2435]	36.5[3235]
Max. Output	Cont.	4.5[6.0]	5.8[7.8]	8.4[11.5]	10.1[13.5]	10.2[13.7]	10.5[14.1]	10.2[13.7]
kW [HP]	Int*	6.1[8.2]	7.8[10.5]	11.6[15.5]	12.2[16.1]	12.5[16.8]	12.8[17.1]	12[16.1]
Max. Pressure Drop	Cont.	100[1450]	100[1450]	120[1750]	140[2030]	140[2030]	140[2030]	140[2030]
bar [PSI]	Int*	140[2030]	140[2030]	155[2250]	175[2540]	175[2540]	175[2540]	175[2540]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Oil Flow	Cont.	40[10.5]	50[13.2]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]
lpm [GPM]	Int*	45[11.9]	55[14.5]	70[18.5]	75[19.8]	75[19.8]	75[19.8]	75[19.8]
Max. Inlet Pressure	Cont.	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]
bar [PSI]	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Return Pressure	Cont.	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]
without Drain Line	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]
bar [PSI]	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Starting Pressure		10[145]	10[145]	10[145]	10[145]	10[145]	10[145]	9[131]
with Unloaded Shaft, bar [PSI]								
Min. Starting Torque	At max. press. drop Cont.	3.0[265]	4.0[355]	5.4[480]	7.8[690]	13.2[1170]	16.6[1470]	20.7[1830]
daNm [lb-in]	At max. press. drop Int*	4.2[370]	5.6[500]	6.8[600]	10[885]	16.8[1490]	21[1860]	26.6[2360]
Min. Speed***, RPM		20	15	10	10	10	10	10
Weight, kg [lb] For								
Rear Port + 0.450 [992]	GP	5.6[12.3]	5.6[12.3]	5.7[12.6]	5.8[12.8]	5.9[13.2]	6.1[13.5]	6.2[13.7]

## Specifications

Technical data for GP with  $\varnothing 25$  and 1" straight and 1" splined and  $\varnothing 28.56$  tapered shaft

Type		GP160	GP200	GP250	GP315	GP400	GP500	GP630
Displacement, cm <sup>3</sup> /rev [in <sup>3</sup> /rev]		158,4[9.66]	198[12.1]	247,5[15.1]	316,8[19.3]	396[24.16]	495[30.2]	623,6[38.05]
Max. Speed,	Cont	378	303	242	190	150	120	95
RPM	Int*	472	378	303	236	189	150	120
Max. Torque	Cont	31,3[2770]	36,6[3240]	38[3360]	38[3360]	36[3190]	39[3452]	44[3895]
daNm [lb-in]	Int*	37,8[3345]	45,6[4035]	58,3[5160]	56[4960]	59[5240]	57[5045]	64[5665]
	Peak**	43,8[3880]	55[4870]	68,5[6060]	85[7505]	85,4[7560]	78[6903]	82[7257]
Max. Output	Cont	10,1[13.5]	10[13.5]	7,5[10]	5,8[7.9]	4,6[6.2]	3,5[4.7]	3,3[4.4]
kW [HP]	Int*	12,1[16.2]	12[16.1]	12[16.1]	9[12.1]	7,8[10.5]	7,2[9.7]	5,6[7.5]
Max. Pressure Drop	Cont	140[2030]	140[2030]	110[1600]	90[1300]	70[1015]	60[870]	55[800]
bar [PSI]	Int*	175[2540]	175[2540]	175[2540]	140[2030]	115[1665]	90[1305]	80[1160]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	180[2610]	130[1885]	110[1740]
Max. Oil Flow	Cont	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]
lpm [GPM]	Int*	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]
Max. Inlet Pressure	Cont	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	140[2030]	140[2030]
bar [PSI]	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	175[2540]	175[2540]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Return Pressure	Cont	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	140[2030]	140[2030]
without Drain Line	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	175[2540]	175 [2540]
bar [PSI]	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Starting Pressure		8[116]	7[100]	6[87]	5[73]	5[73]	5[73]	5[73]
with Unloaded Shaft, bar [PSI]								
Min. Starting Torque	At max. press. drop Cont	28,2[2500]	33,5[2950]	33,6[2970]	34,4[3045]	34,5[3050]	36[3180]	41,5[3670]
daNm [lb-in]	At max. press. drop Int*	35,5[3140]	42,6[3770]	54,2[4795]	61,9[5480]	60,8[5390]	54[4780]	62[5480]
Min. Speed***, RPM		10	10	10	10	10	10	10
Weight, kg [lb] For								
Rear Port + 0.450 [992]	GP	6,4[14.1]	6,6[14.6]	6,8[15]	7,1[15.6]	7,6[16.8]	8,9[20]	9,5[21.4]

## Specifications

Technical data for GP with  $\varnothing 31.75$  and  $\varnothing 32$  shaft

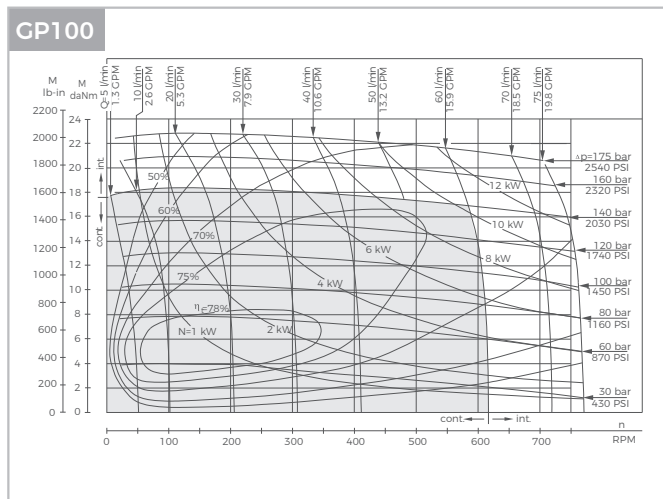
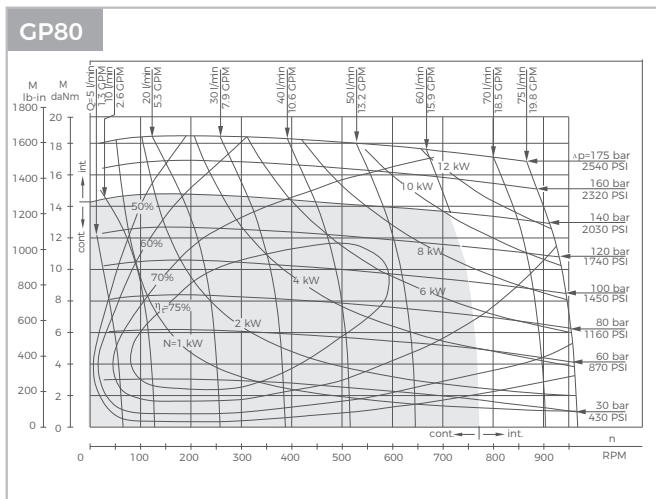
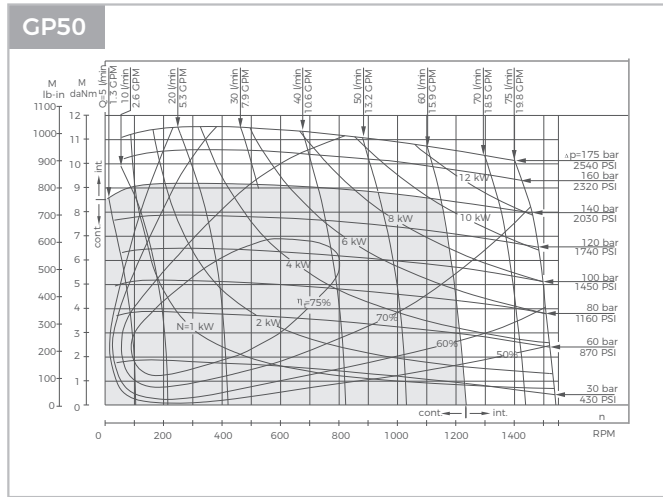
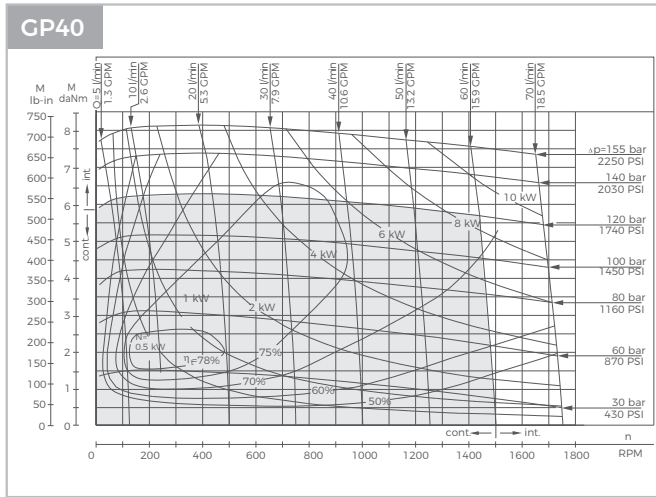
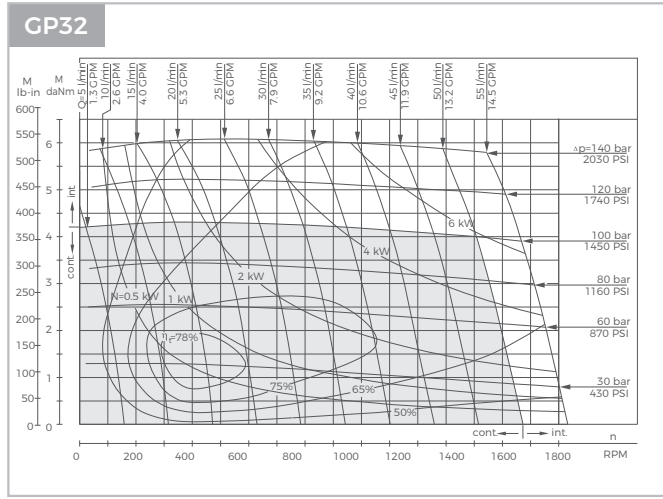
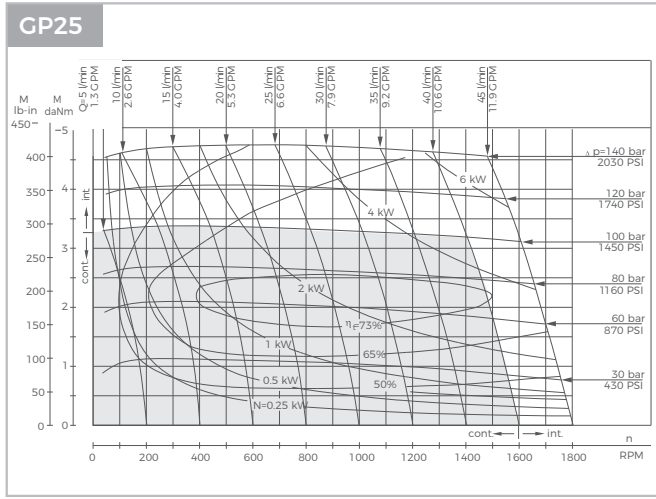
Type		GP25	GP32	GP40	GP50	GP80	GP100	GP125
Displacement, cm <sup>3</sup> /rev [in <sup>3</sup> /rev]		25[1.52]	32[1.95]	40[2.44]	49.5[3.02]	79.2[4.83]	99[6.04]	123.8[7.55]
Max. Speed,	Cont	1600	1560	1500	1210	755	605	486
RPM	Int*	1815	1720	1750	1515	945	755	605
Max. Torque	Cont	3.3[290]	4.3[380]	6.2[550]	9.4[835]	15.1[1340]	19.3[1710]	23.7[2100]
daNm [lb-in]	Int*	4.7[415]	6.1[540]	8.2[730]	11.9[1050]	19.5[1725]	23.7[2100]	29.8[2640]
	Peak**	6.7[595]	8.6[760]	10.7[950]	14.3[1285]	22.4[1985]	27.5[2435]	36.5[3235]
Max. Output	Cont	4.5[6.0]	5.8[7.8]	8.4[11.5]	10.1[13.5]	10.2[13.7]	10.5[14.1]	10.2[13.7]
kW [HP]	Int*	6.1[8.2]	7.8[10.5]	11.6[15.5]	12.2[16.1]	12.5[16.8]	12.8[17.1]	12[16.1]
Max. Pressure Drop	Cont	100[1450]	100[1450]	120[1750]	140[2030]	140[2030]	140[2030]	140[2030]
bar [PSI]	Int*	140[2030]	140[2030]	155[2250]	175[2540]	175[2540]	175[2540]	175[2540]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Oil Flow	Cont	40[10.5]	60[13.2]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]
lpm [GPM]	Int*	45[11.9]	55[14.5]	70[18.5]	75[19.8]	75[19.8]	75[19.8]	75[19.8]
Max. Inlet Pressure	Cont	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]
bar [PSI]	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Return Pressure	Cont	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]
without Drain Line	Int*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]
bar [PSI]	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Starting Pressure		10[145]	10[145]	10[145]	10[145]	10[145]	10[145]	9[131]
with Unloaded Shaft, bar [PSI]								
Min. Starting Torque		3.0[265]	4.0[355]	5.4[480]	7.8[690]	13.2[1170]	16.6[1470]	20.7[1830]
daNm [lb-in]	At max. press. drop Cont	4.2[370]	5.6[500]	6.8[600]	10[885]	16.8[1490]	21[1860]	26.6[2360]
Min. Speed***, RPM	At max. press. drop Int*	20	15	10	10	10	10	10
Weight, kg [lb] For								
Rear Port + 0.450 [992]	GP	5.6[12.3]	5.6[12.3]	5.7[12.6]	5.9[13]	6[13.2]	6.2[13.7]	6.3[13.9]

## Specifications

Technical data for GP with  $\varnothing 31.75$  and  $\varnothing 32$  shaft

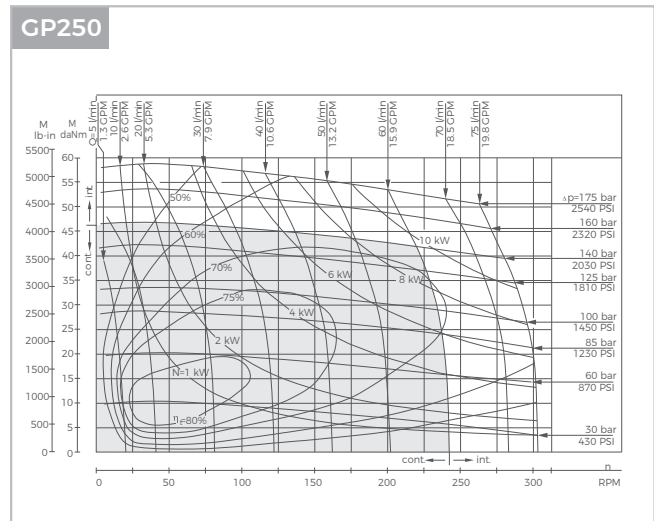
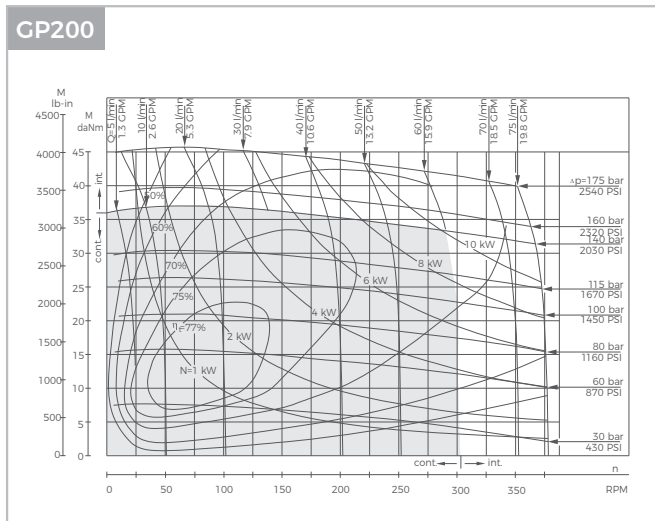
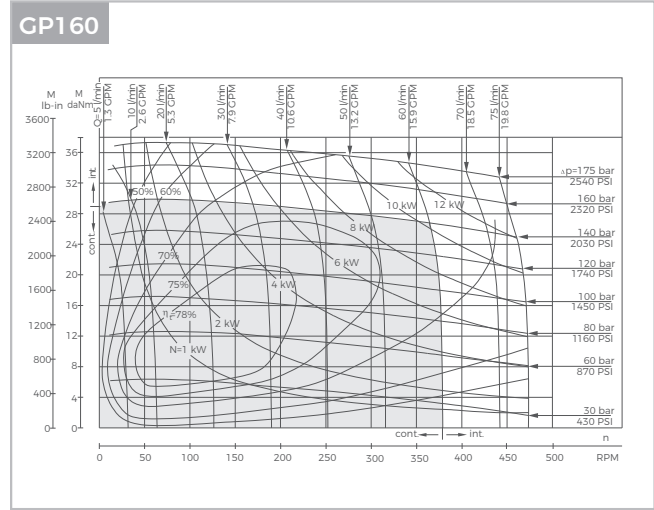
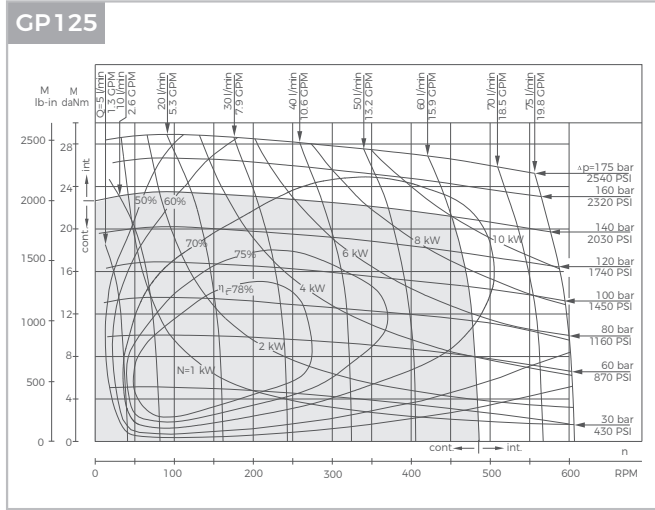
Type		GP160	GP200	GP250	GP315	GP400	GP500	GP630
Displacement, cm <sup>3</sup> /rev [in <sup>3</sup> /rev]		158,4[9.66]	198[12.1]	247,5[15.1]	316,8[19.3]	396[24.16]	495[30.2]	623,6[38.05]
Max. Speed,	Cont.	378	303	242	190	150	120	95
RPM	Int.*	472	378	303	236	189	150	120
Max. Torque	Cont.	31,3[2770]	36,6[3240]	47[4160]	48[4360]	50[4415]	39[3452]	44[3895]
daNm [lb-in]	Int.*	37,8[3345]	45,6[4035]	58,3[5160]	56[4960]	59[5240]	57[5045]	64[5665]
	Peak**	43,8[3880]	55[4870]	68,5[6060]	85[7505]	85,4[7560]	78[6903]	82[7257]
Max. Output	Cont.	10,1[13.5]	10[13.5]	9[12.1]	7,6[10.2]	6,2[8.3]	3,5[4.7]	3,3[4.4]
kW [HP]	Int.*	12,1[16.2]	12[16.1]	12[16.1]	9[12.1]	7,8[10.5]	7,2[9.7]	5,6[7.5]
Max. Pressure Drop	Cont.	140[2030]	140[2030]	140[2030]	120[1740]	95[1400]	60[870]	55[800]
bar [PSI]	Int.*	175[2540]	175[2540]	175[2540]	140[2030]	115[1670]	90[1305]	80[1160]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	180[2610]	130[1885]	110[1740]
Max. Oil Flow	Cont.	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]	60[15.9]
lpm [GPM]	Int.*	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]	75[19.8]
Max. Inlet Pressure	Cont.	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	140[2030]	140[2030]
bar [PSI]	Int.*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	175[2540]	175[2540]
	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Return Pressure	Cont.	175[2540]	175[2540]	175[2540]	175[2540]	175[2540]	140[2030]	140[2030]
without Drain Line	Int.*	200[2900]	200[2900]	200[2900]	200[2900]	200[2900]	175[2540]	175[2540]
bar [PSI]	Peak**	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]	225[3260]
Max. Starting Pressure		8[116]	7[100]	6[87]	5[73]	5[73]	5[73]	5[73]
with Unloaded Shaft, bar [PSI]								
Min. Starting Torque		28,2[2500]	33,5[2950]	42,8[3790]	40,50[45.8]	46,8[4140]	36[3180]	41,5[3670]
daNm [lb-in]	At max. press. drop Cont.	35,5[3140]	42,6[3770]	54,2[4795]	54,80[61.9]	60,8[5390]	54[4780]	62[5480]
Min. Speed***, RPM	At max. press. drop Int.*	10	10	10	10	10	10	10
Weight, kg [lb] For Rear Port + 0,450 [992]	GP	6[14.3]	6[14.8]	6,9[15.2]	7,2[15.9]	7,7[17]	9[19.9]	9[21.2]

## Function Diagrams



The function diagrams data is for average performance of randomly selected motors at backpressure. 5÷10 bar [72.5÷145 PSI] and oil with viscosity of 32 mm<sup>2</sup>/s [150 SUS] at 50°C [122°F].

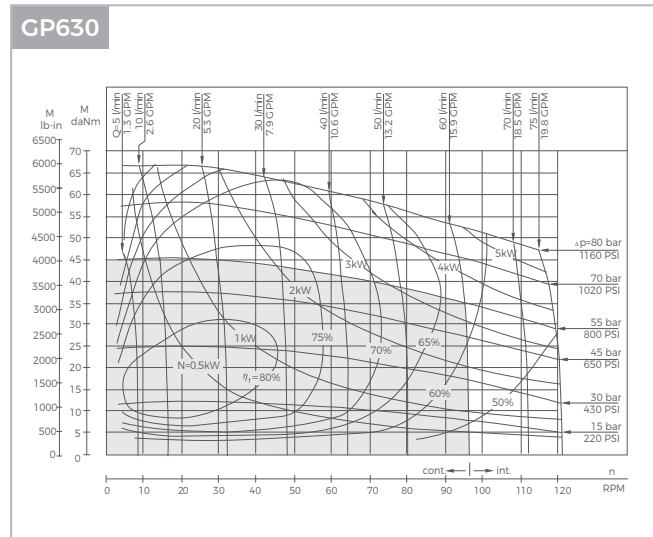
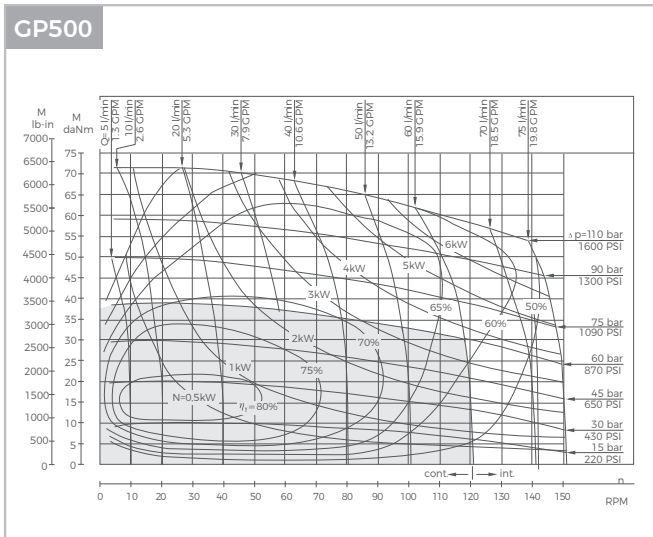
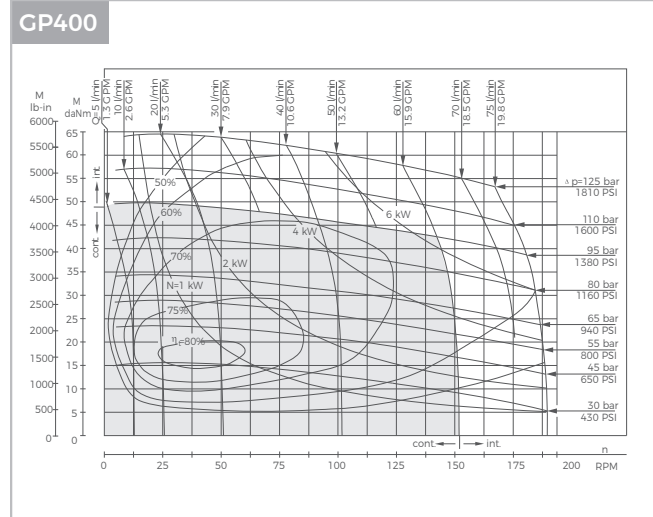
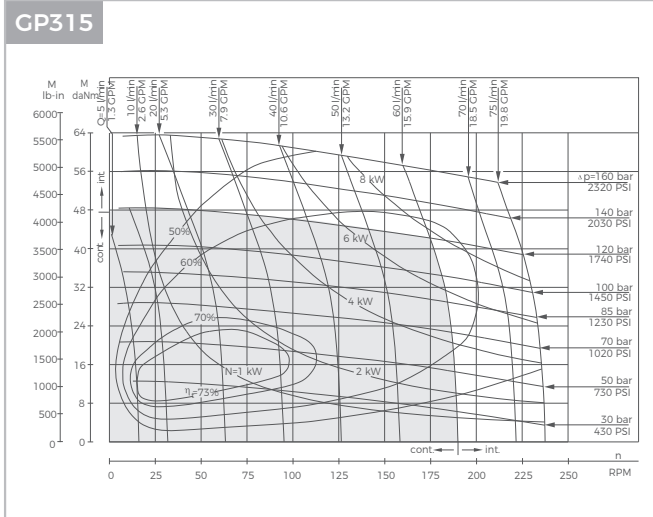
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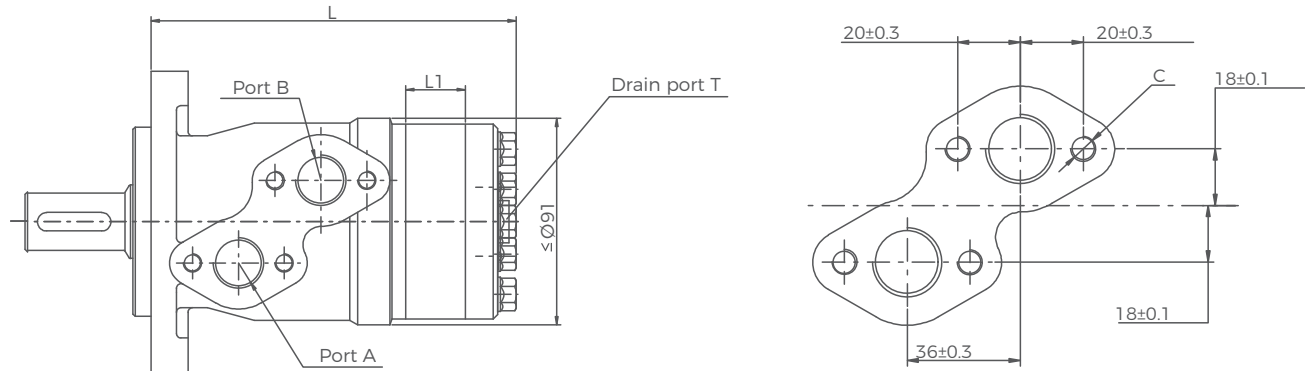


## Function Diagrams



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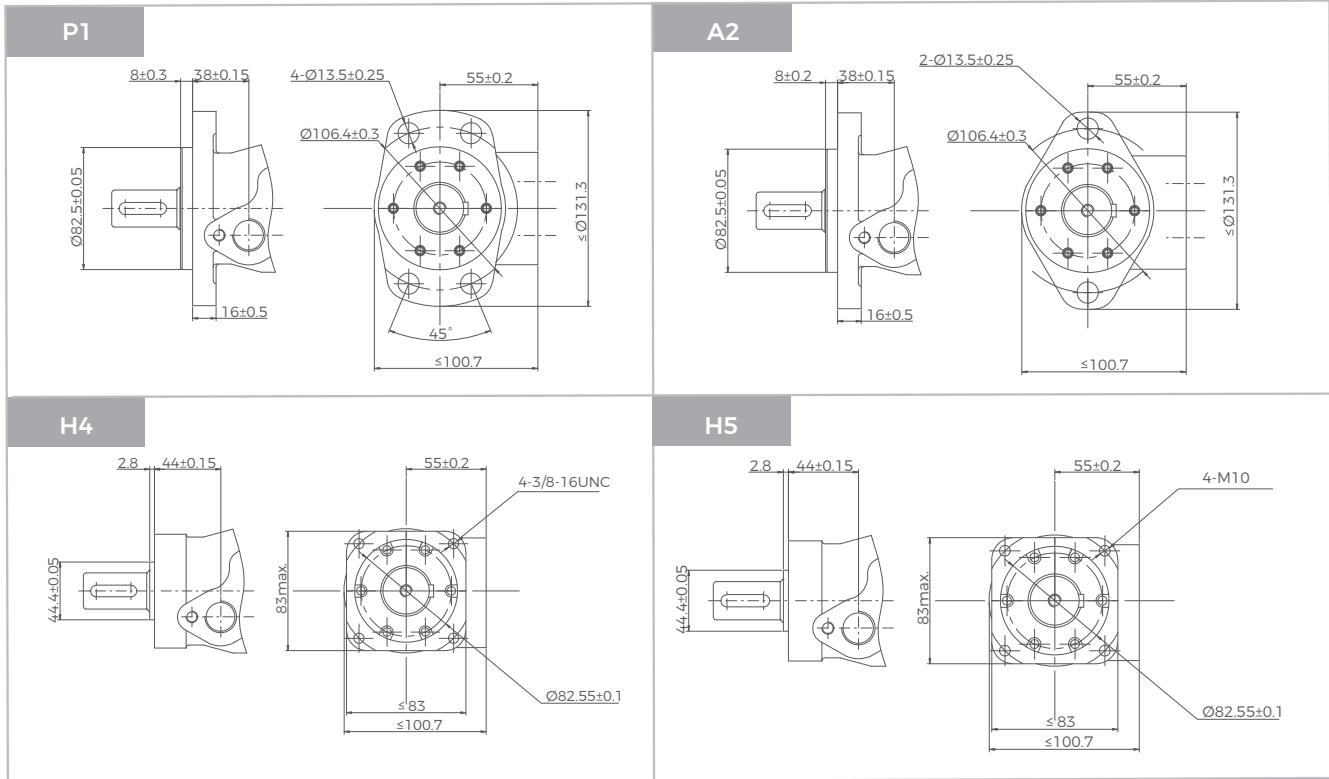
## GP Dimensions and Mountings



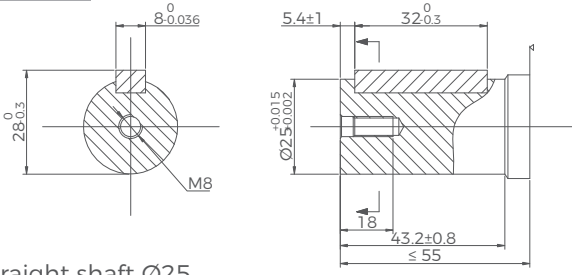
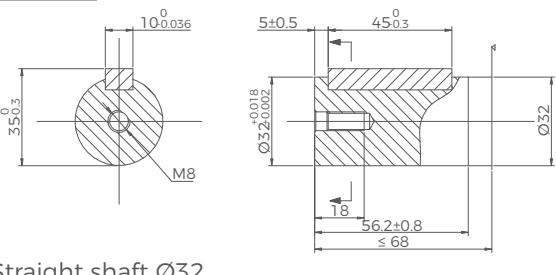
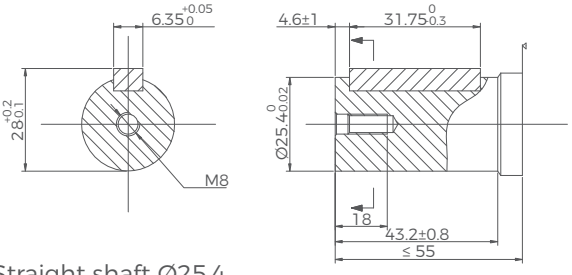
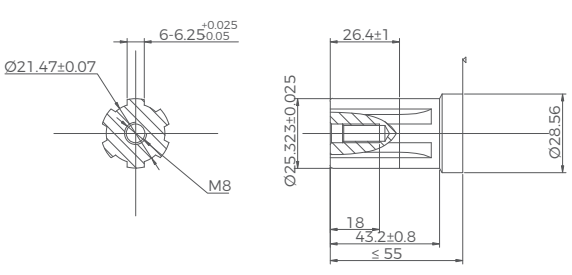
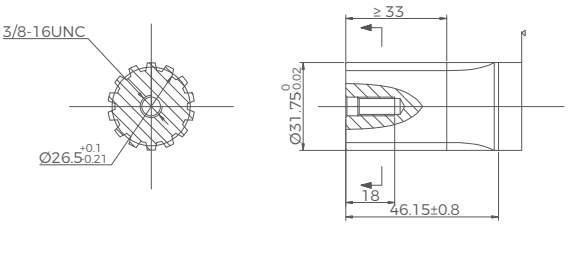
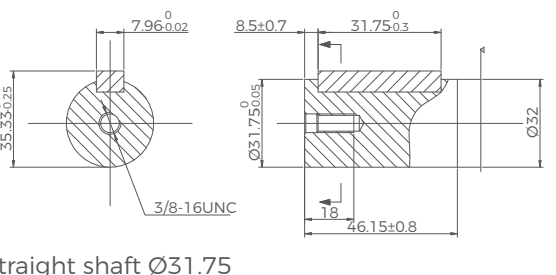
Model	L	L1
GP25	135	4.5
GP32	136	5.5
GP40	137	7
GP50	137	7
GP80	140.5	10.5
GP100	143	13
GP125	146	16
GP160	151	21
GP200	157	26
GP250	162	32
GP315	172	42
GP400	182	52
GP500	195	65
GP630	213	84

Mounting	G1 (depth)	M1 (depth)	U2 (depth)	U1 (depth)	G2 (depth)
P(A, B)	G1/2(15)	M22 x 1.5(15)	7/8-14 O-ring(17)	1/2-14NPTF(15)	PT(RC)1/2(15)
C	4-M8(13)	4-M8(13)	4-5/16-18UNC(13)	4-5/16-18UNC(13)	4-M8(13)
T	G1/4(12)	M14 x 1.5(12)	7/16-20UNF(12)	7/16-20UNF(12)	PT(RC)1/4(9.7)

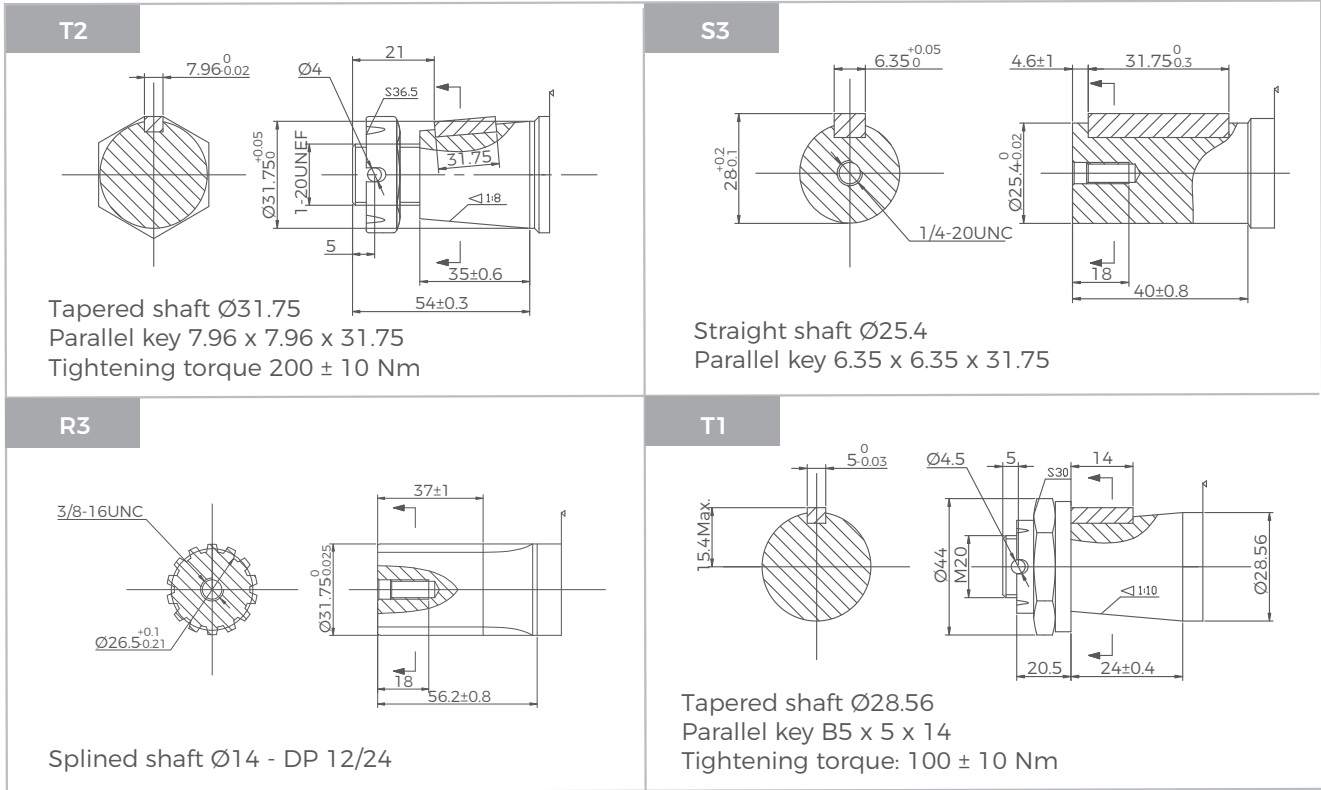
### GP Flange Covers Dimensions



## GP Shafts Dimensions

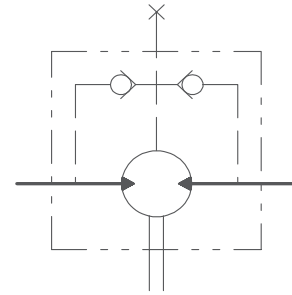
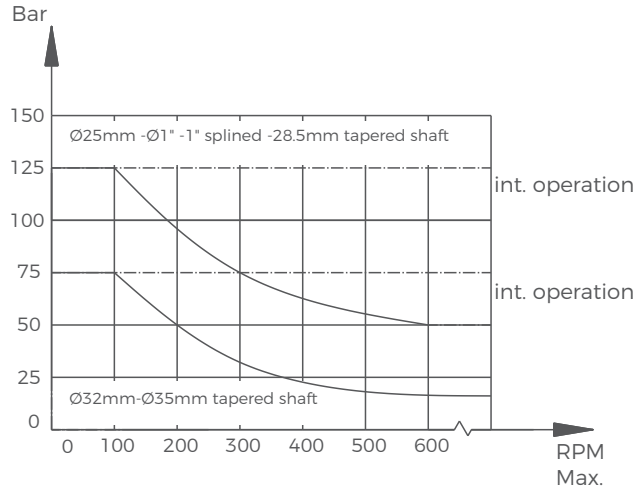
<p><b>S1</b></p>  <p>Straight shaft Ø25 Parallel key 8 x 7 x 32</p>	<p><b>S4</b></p>  <p>Straight shaft Ø32 Parallel key 10 x 8 x 45</p>
<p><b>S2</b></p>  <p>Straight shaft Ø25.4 Parallel key 6.35 x 6.35 x 31.75</p>	<p><b>R1</b></p>  <p>Splined shaft SAE 6B</p>
<p><b>R2</b></p>  <p>Splined shaft 14 - DP 12/24</p>	<p><b>S5</b></p>  <p>Straight shaft Ø31.75 Parallel key 7.96 x 7.96 x 31.75</p>

### GP Shafts Dimensions



## GP Series Hydraulic Motors

### Permissible shaft seal pressure



GP with standard shaft seal check valves and without use of drain connection: The pressure on the shaft seal never exceeds the pressure in the return line.

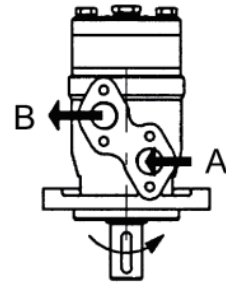
GP with standard shaft seal, check valves and with drain connection: The shaft seal pressure equals the pressure on the drain line.

### Drain Port

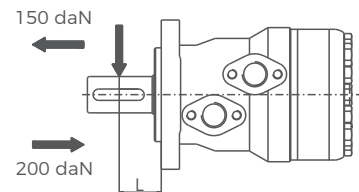
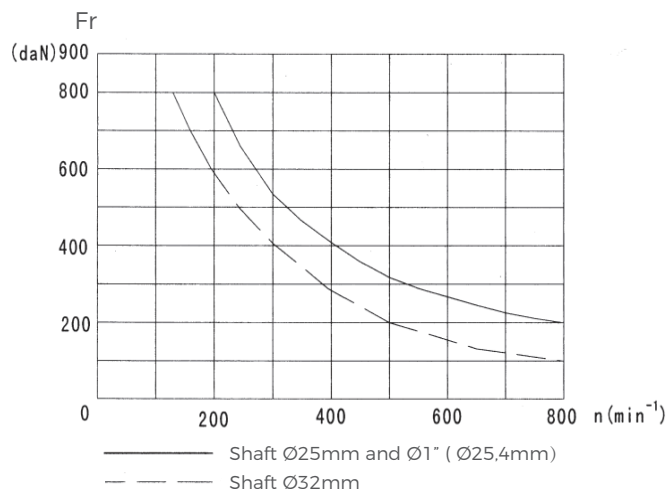
In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. In applications using the drain line, the pressure of output shaft seal equals the pressure in drain line.

### Standard direction of shaft rotation: Standard

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



### Output shaft stand radial force



$$F_r = \frac{800}{n} * \frac{25000}{95 + L} \text{ (daN)}$$

$F_r$  = Radial Force (daN)

$L$  = Distance (mm)

$n$  = Speed (rpm)

Rhomb flange  $L = 30\text{mm}$

Square flange  $L = 24\text{mm}$