

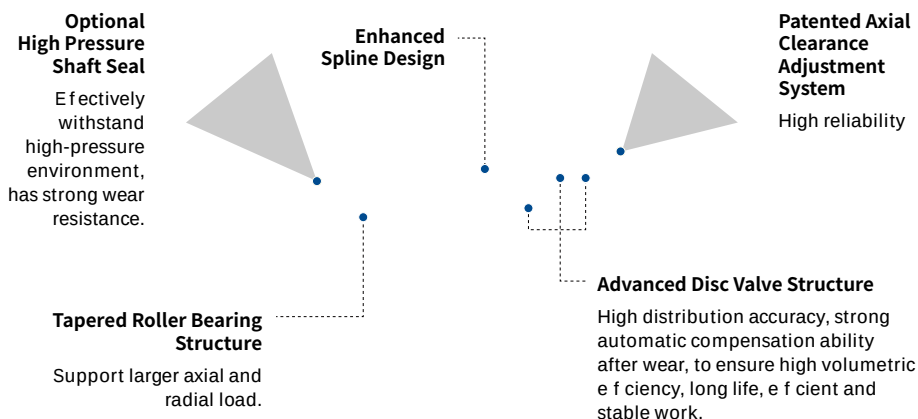


Overview

The HSP motor is a product with improved reliability at the same pressure flow rate as the HSD, designed for all kinds of tough applications with small installation space. Stronger internal spline design, patented axial clearance adjustment design improves reliability of HSP series motor. Designed for some classic tough applications like Cane-harvester, Auger rigs, Mobile crusher and Wheel loader etc.

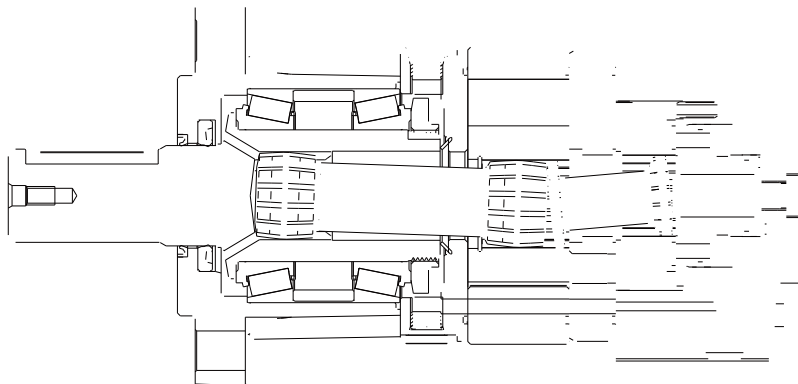
Advantages

- Using tapered roller bearing structure, can support larger axial and radial load.
- HengLi's patented axial clearance adjustment design can improve the wearing of drive.
- The motor's improved spline strength, shaft strength and bearing side load capability make sure high reliability comparing competitors, also passed endurance test with more than 1000Nm torque to prove the robust design.
- Compared with market competitors, the HSP motor delivers superior drive, seal, bearing life and full displacements from 80cc to 500cc, which means that our customers do not have to sacrifice reliability in a cost-effective solution.
- Optional relief valve, speed sensor.



Standard structure

HSP Orbital hydraulic motor



Specification

Type		80	100	125	160	200	230	250	315	400	500
Displacement (cm ³ /rev.)		80.2	99.6	124.9	159.2	199.4	232.1	249.3	314.0	391.9	488.3
Max.speed (rpm)	Continuous	773	739	592	465	372	318	298	236	188	153
	Intermittent	982	892	714	562	447	385	359	284	229	187
Max.torque (N·m)	Continuous	241	297	370	473	610	658	760	874	897	847
	Intermittent	316	390	485	580	727	812	855	987	1056	986
Max.output (kW)	Continuous	15.5	18.0	18.0	16.5	16.5	13.8	14.5	15.0	11.0	9
	Intermittent	19.5	22.5	22.5	23.0	22.0	17.2	18.0	17.0	12.5	10.5
Max. di ferential pressure (bar)	Continuous	225	225	225	225	225	225	225	225	175	120
	Intermittent	275	275	275	260	250	250	250	240	190	140
	Peak	295	295	295	280	270	270	270	260	210	160
Max. fow (L/min)	Continuous	65	75	75	75	75	75	75	75	75	75
	Intermittent	80	90	90	90	90	90	90	90	90	90
Max.no-load starting pressure (bar)		12	10	10	8	8	8	8	8	8	8
Min.starting torque (N·m)	Max.continuous di ferential pressure	145	215	283	359	460	530	554	734	796	781
	Max.Intermittent di ferential pressure	188	281	371	440	557	633	697	858	925	925
Weight(Standard/Wheel) (kg)		11.7	11.9	12.1	12.5	12.9	13.3	13.5	14.2	15	15

T-0124

- Intermittent working condition: The working time should be less than 6 seconds per minute under the intermittent working condition.
- Peak di ferential pressure: At peak di ferential pressure, the operating time is less than 0.6 seconds per minute.
- It is not recommended for the motor to work at simultaneous maximum torque and maximum speed.
- The fltration standard of ISO 4406 cleaning standard 20/18/15 is recommended.
- High quality anti-wear hydraulic fluids are recommended.
- When the temperature is 50° , the minimum viscosity of the oil is recommended to be 20mm²/s.
- The recommended maximum operating temperature is 82 .
- To assure best motor life, run motor 10-15 minutes in low speed high torque mode at approximately 50% of continuous pressure and 50% of continuous fow.

Ordering information

HSP	080	A3	1	S3	A	N	A

Orbital Hydraulic Series

Orbital Hydraulic Motor	HSP
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Type

Type	080	100	125	160	200	230	250	315	400	500
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Mount

SAE Type A 2 × Ø13.5 mount Ø106.4, pilot Ø82.5 × 6.1	A3
SAE Type A 4 × Ø13.5 mount Ø106.4, pilot Ø82.5 × 6.1	A2
4 × M12 × 1 Square mount Ø82.55, pilot Ø44.4 × 3	F6
6 × Ø13.5 Magneto mount Ø106.4, pilot Ø82.5 × 2.6	M0
Wheel 4 × Ø13.5 mount Ø147.6, pilot Ø107.9 × 6.4	W1
Wheel 4 × Ø13.5 mount Ø147.6, pilot Ø107.9 × 6.4, rotate 45	W4

Port

Port G1/2, drain port G1/4	1
Port 7/8-14UNF, drain port 7/16-20UNF	2
Port M22 × 1.5, drain port M14 × 1.5	4
Port G1/2, drain port G1/4, fat seal	H
Port M22 × 1.5, drain port M14 × 1.5, O-ring seal	3
Port 1 1/16-12UNF, drain port 7/16-20UNF, O-ring seal, side oil port	6
Rear port, port 7/8-14UNF, drain port 7/16-20UNF	D
Port 7/8-14UNF, drain port 7/16-20UNF, rear speed sensor	N
Port glossy hole Ø12.7, drain port G1/4(ED-ring seal), with threaded 2 × M10, interchangeable oil port positions	Q

Output Shaft

Ø32 straight, parallel key 10 × 8 × 45	S3
Ø25.4 shaft, spline SAE 6B	R1
Ø31.75 spline 14-DP12/24	R5
Ø25.4 straight, parallel key 6.35 × 6.35 × 31.75, center hole 1/4-20UNC	S1
Ø31.75 straight, parallel key 7.96 × 7.96 × 31.75, center hole 3/8-16UNC	S5
Ø31.75 spline 14-DP12/24, center hole 3/8-16UNC, with retracting groove	RA
Ø30 6B spline, lengthening	RN
Ø31.75 tapered shaft, parallel key 7.96 × 7 × 22.6(keyed parallel to tapered shaft	TN
Ø31.75 tapered shaft, parallel key 7.96 × 7.96 × 31.75(keyed parallel to tapered shaft	T4

Ordering information

Rotation Direction

CW	A
CCW	R

Paint Option

No Paint	N
Black	B
Hengli blue	C

Special Features

	F6/M0/W1	A2/A3/W4	Code
Standard	●	●	A
Free running	●	●	F
High temperature	●	●	V
Low temperature	●	●	S
High pressure shaft seal	○	●	C
High pressure shaft seal + Dust cover	○	●	DC
Mount rotation 90°	●	●	R
Speed sensor, DT04-4P connector	●	●	S2

T - 0135

Note: ● =Available ○ =Available on request When using the order information, the user can select the motor series, displacement, installation flange, port, shaft and other information. If the selected specification is not in the table or has special requirements, please contact us.

Displacement performance

		Pressure(bar)					Max.Cont		Max.Inter	
		30	70	105	140	175	210	225	250	275
		Torque(N · m), Speed(rpm)								
Flow (L/min)	5	26 60	59 57	92 54	117 52	147 51				
	10	33 121	72 118	110 115	146 111	183 105	218 98	233 93	254 86	
	20	33 243	74 239	116 235	155 231	195 225	236 217	259 204	278 203	304 186
	30	29 367	76 362	118 357	159 352	199 345	241 335	268 330	287 319	316 303
	40	25 489	72 483	113 479	154 473	195 465	235 455	262 434	280 438	311 421
	50		67 608	108 602	150 595	190 586	232 574	260 550		
	65		66 773	105 766	146 758	189 747	230 733	259 696		
	80		62 982	102 974	143 964	185 953				
	Max.Cont									
	Max.Inter									

Overall Efficiency: 70-100% ☐ 40-69% ☐ 0-39% ☐

T-0125

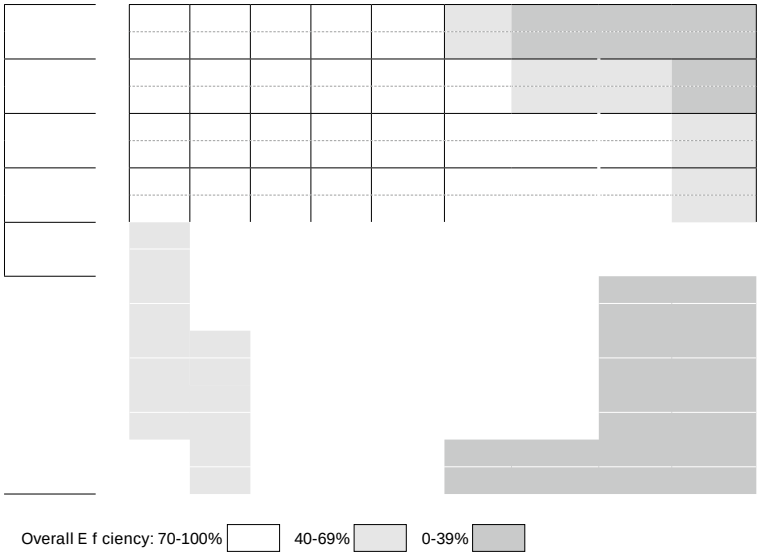
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		Pressure(bar)					Max.Cont		Max.Inter	
100		35	70	105	140	175	210	225	250	275
100cm ³ /rev.		Torque(N·m), Speed(rpm)								
Flow (L/min)	5	36 48	80 47	121 46	159 44	197 42	232 38	257 34		
	10	37 97	82 95	125 93	166 91	227 85	257 84	276 82	306 74	337 69
	20	39 196	90 194	139 191	187 189	235 185	280 180	299 176	326 168	352 157
	30	41 295	93 292	143 288	193 284	244 280	292 276	316 269	352 260	383 249
	40	41 393	92 390	143 386	193 382	245 376	297 369	320 366	356 355	390 342
	50	37 494	88 488	140 485	192 481	241 474	293 466	316 463		
	60	33 592	80 588	133 584	185 577	235 571	288 562	310 556		
	75	30 739	78 731	130 725	180 719	230 709	283 697	304 690		
	Max.Cont	90		71	123	172	223			
	Max.Inter			892	885	876	867			

Overall Efficiency: 70-100% ☐ 40-69% ☐ 0-39% ☐

T-0126

Displacement performance



Overall Efficiency: 70-100% 40-69% 0-39%

T-0128

Displacement performance

02

T-0129

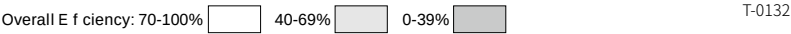
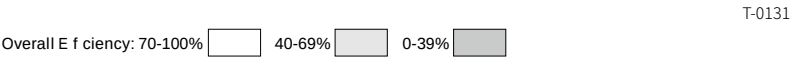


T-0130



Displacement performance

02



Displacement performance

		Pressure(bar)						Max.Cont	Max.Inter	
		30	60	80	105	120	140	160	175	190
		Torque(N·m), Speed(rpm)								
Flow (L/min)	5	142 11	293 10							
	10	153 25	306 24	414 23	558 22					
	20	152 50	328 49	448 48	590 47	677 46	791 45	897 39	979 36	
	30	163 75	342 74	460 73	608 72	697 71	815 70	931 68	997 65	1056 60
	40	153 100	331 99	451 98	599 97	688 96	810 95	923 93	978 91	
	50	136 125	330 124	454 123	590 122	688 121	776 121			
	60	123 150	298 150	417 149	566 148	657 147	775 145			
	Max.Cont	75	96 188	278 188	399 187	544 185	635 185			
	Max.Inter	90	68 225	248 229	367 227	517 224				

T-0133

Overall Efficiency: 70-100% ☐ 40-69% ☐ 0-39% ☐

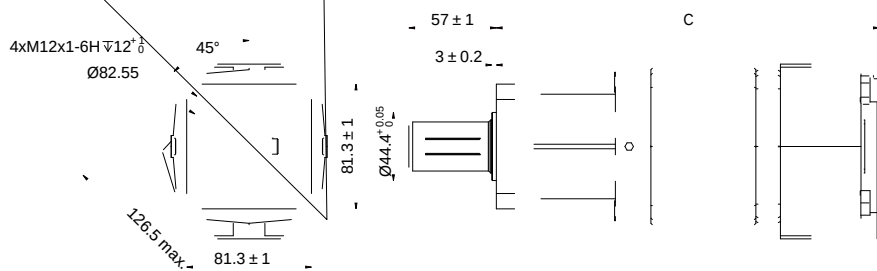
		Pressure(bar)						Max.Cont	Max.Inter
		25	50	80	90	105	120	140	
		Torque(N·m), Speed(rpm)							
Flow (L/min)	10	160 20	329 20						
	20	152 41	333 40	547 40	616 39	722 34			
	30	160 57	342 57	561 56	633 56	740 56	847 55	986 54	
	40	153 81	337 81	557 80	629 80	736 79	842 79		
	50	132 102	316 101	538 100	613 100	723 100	835 99		
	60	121 122	304 122	526 121	597 121	708 135			
	Max.Cont	75	92 153	260 153	478 152	552 151	664 151		
	Max.Inter	90	56 177	223 186	447 184	518 184			

Torque(N·m):835
Speed(rpm): 99

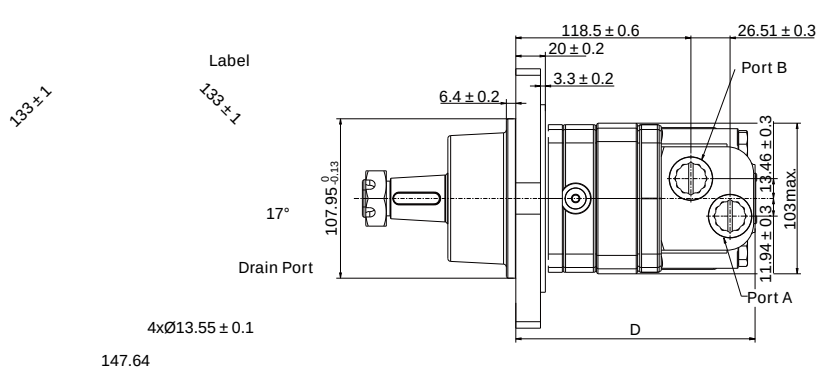
Overall Efficiency: 70-100% ☐ 40-69% ☐ 0-39% ☐

T-0134

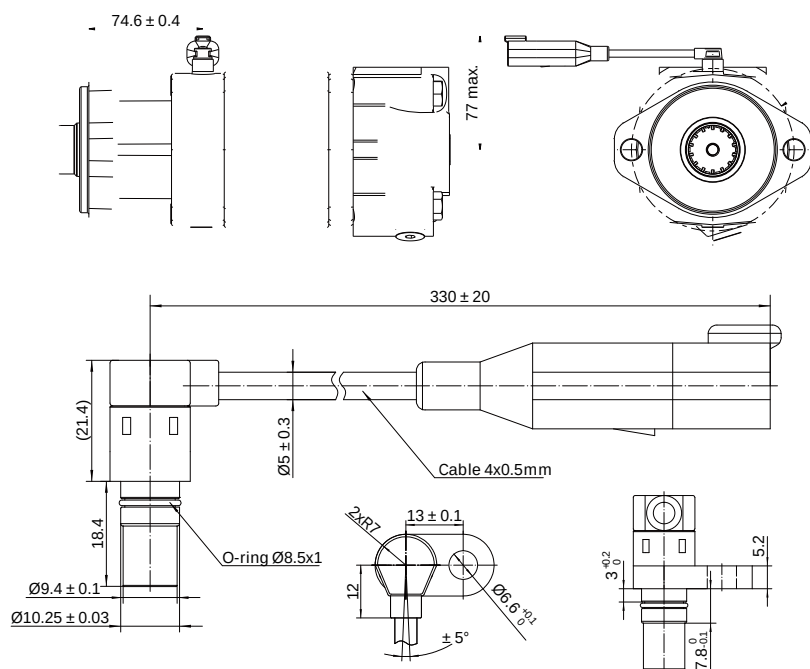




P - 0161



Length and weight



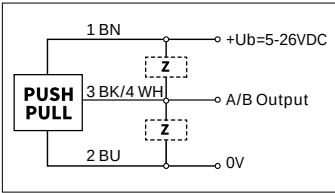
Speed sensor

Dimensions	Ø10.25 /L=18.4mm
Voltage	5-26VDC
Input Current	<15mA
Sensing distance	0.2~1.7mm
Power reverse protection Y/N	Yes
Power input overcurrent and overvoltage protection Y/N	Yes
Maximum output current	40mA
Voltage drop	≤ 2VDC
Working frequency	0-20KHz
Output signal	A, B
Operating temperature	-40 ~ +125
Protection	IP69K
Shell material	Stainless steel/plastic
Pressure resistance of measuring surface	500bar
Connector	Cable 0.33m, Injection 4-core DEUTSCH DT04-4P-EP04 plug

T - 0236

■ WIRING DIAGRAM

■ TERMINAL ASSIGNMENT



P - 0306

P - 0307

53.5 ± 0.2
 44.85 ± 0.15
 6 ± 0.3
 9.98 ± 0.02
 $\varnothing 35$
 $\varnothing 32^{+0.018}_{+0.002}$
 34.85 ± 0.15

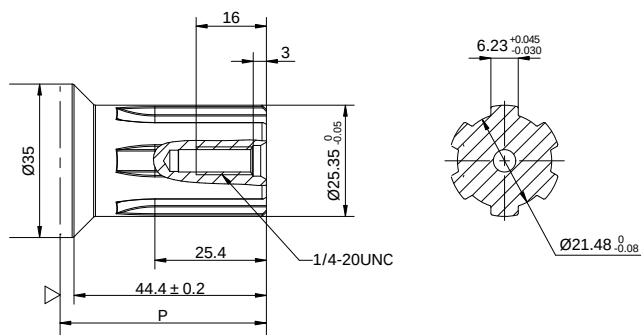
6

1/4-20UNC

16

51.5

P

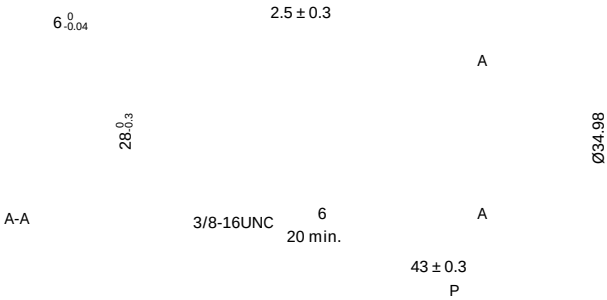


02

Shaft end dimensions

S1

Ø25.4mm Straight
Parallel key: 6.35 × 6.35 × 31.75
Max. Torque: 678N · m



S5

Ø31.75mm Straight
Parallel key: 7.96 × 7.96 × 31.75
Max. Torque: 881N · m

RN

Ø30mm shaft
Spline: SAE 6B
Max. Torque: 768N · m

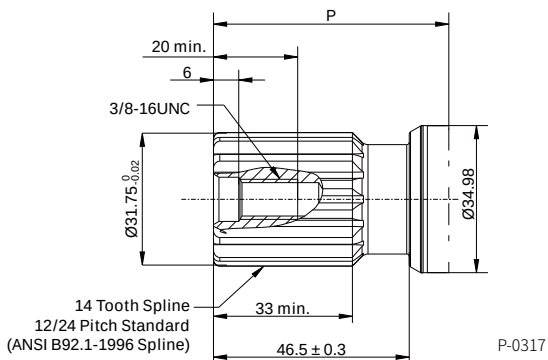
Shaft end dimensions

RA

Ø31.75mm Shaft

Spline: 14-DP12/24 ANSI B92.1 - 1996

Max. Torque: 881N · m

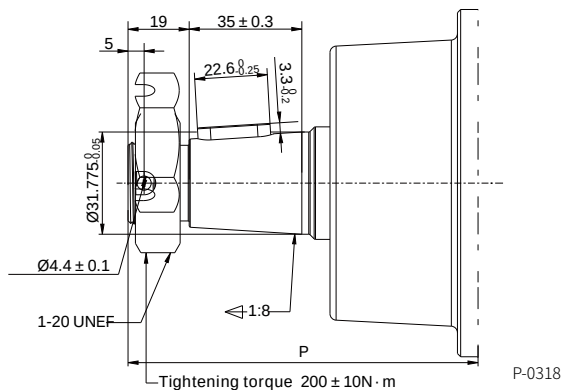
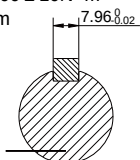

TN

Ø31.75mm Tapered shaft

Parallel key: 7.96 × 7 × 22.6

Tightening torque: 200 ± 10N · m

Max. Torque: 881N · m


T4

Ø31.75mm Tapered shaft

Parallel key: 7.96 × 7.96 × 31.75

Tightening torque: 200 ± 10N · m

Max. Torque: 881N · m

P-0319

Wheel Mount

Square Mount

Allowable shaft load/bearing curve

As shown in the figure, when the axial load is 0, the radial allowable load of the output shaft is related to the distance from the fange mounting surface to the load action point.
The solid line shows the allowable radial load of the bearing. ! is r ç d o

