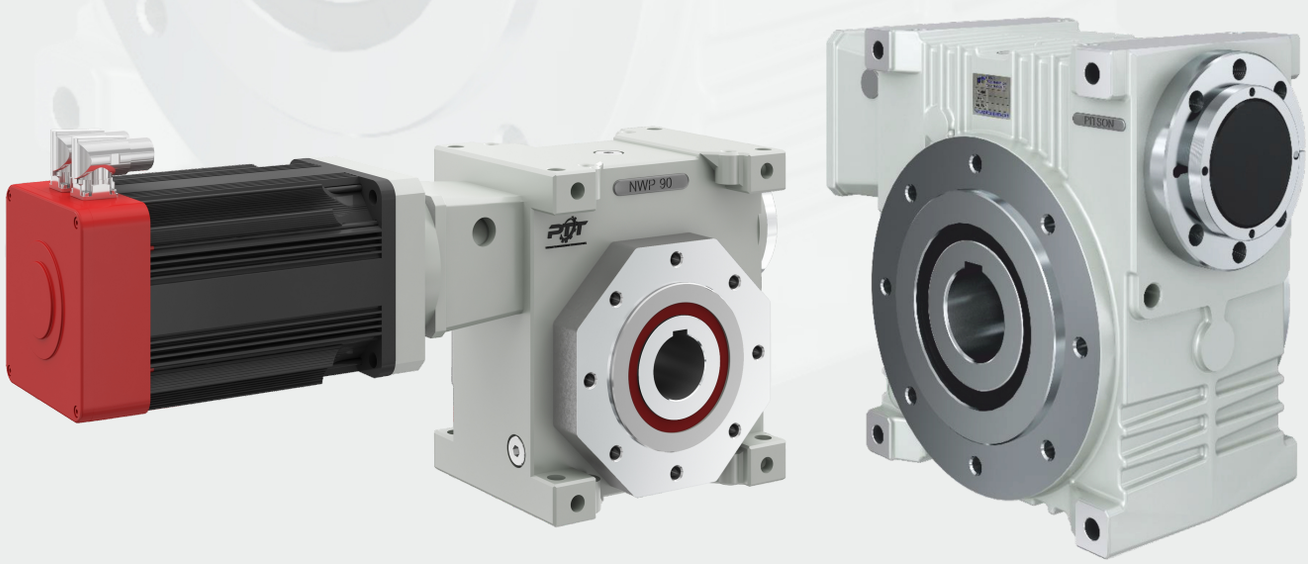
PITSON TRANSMISSION TECHNOLOGIES
Gearing Solutions

NWP Series

Low Backlash Worm Gearbox



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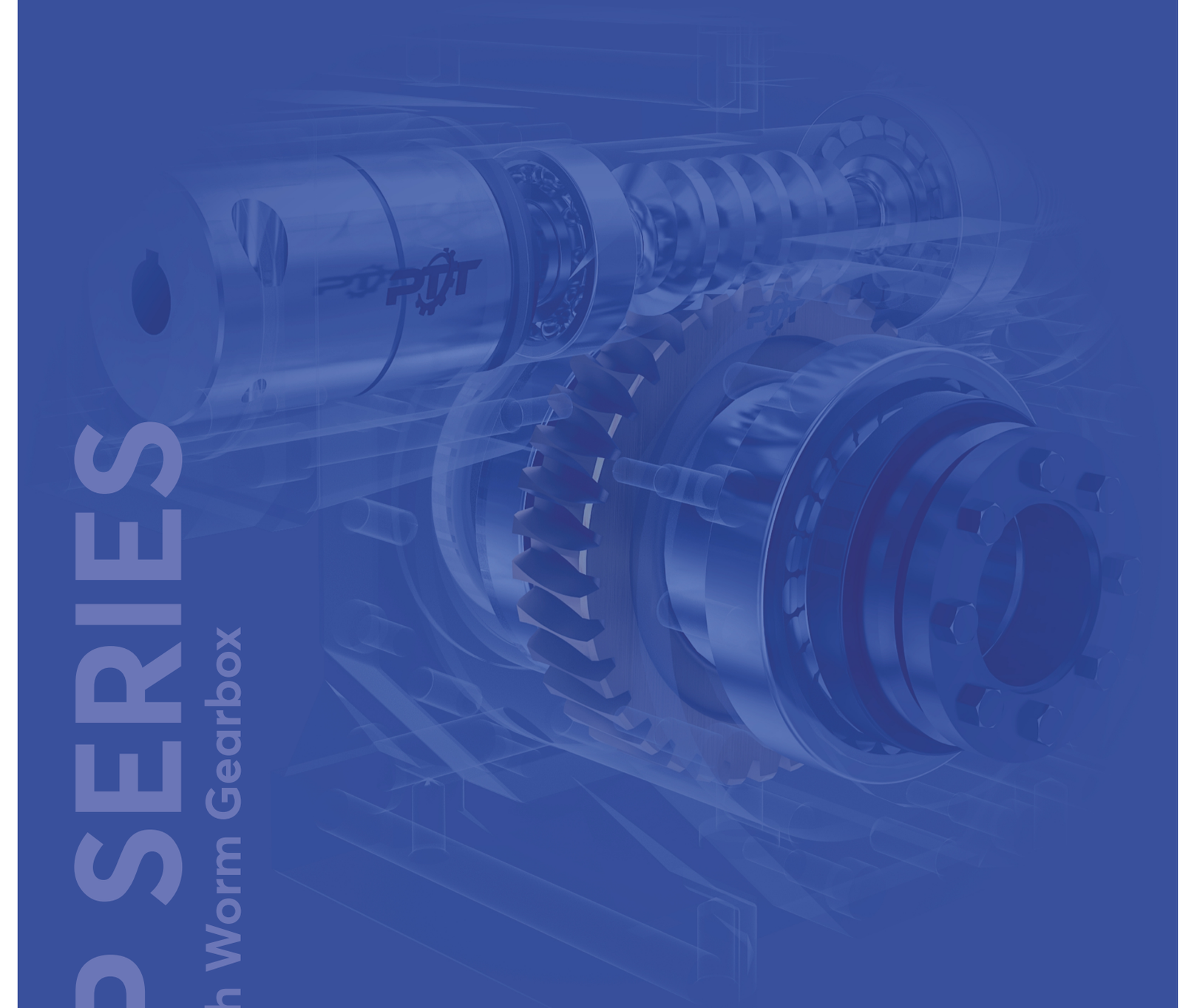
NVP SERIES

Low Backlash Worm Gearbox



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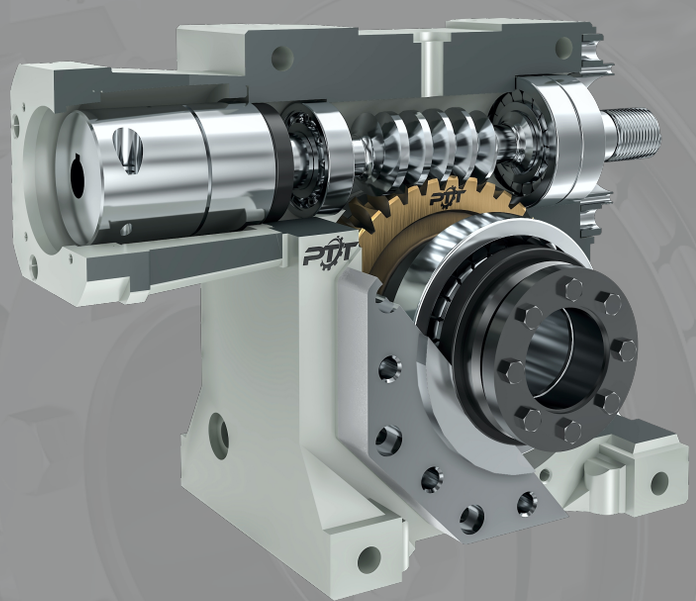

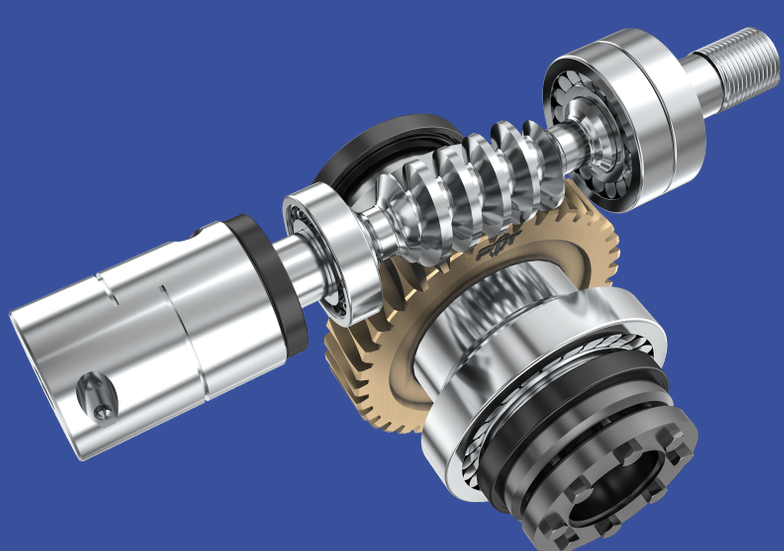

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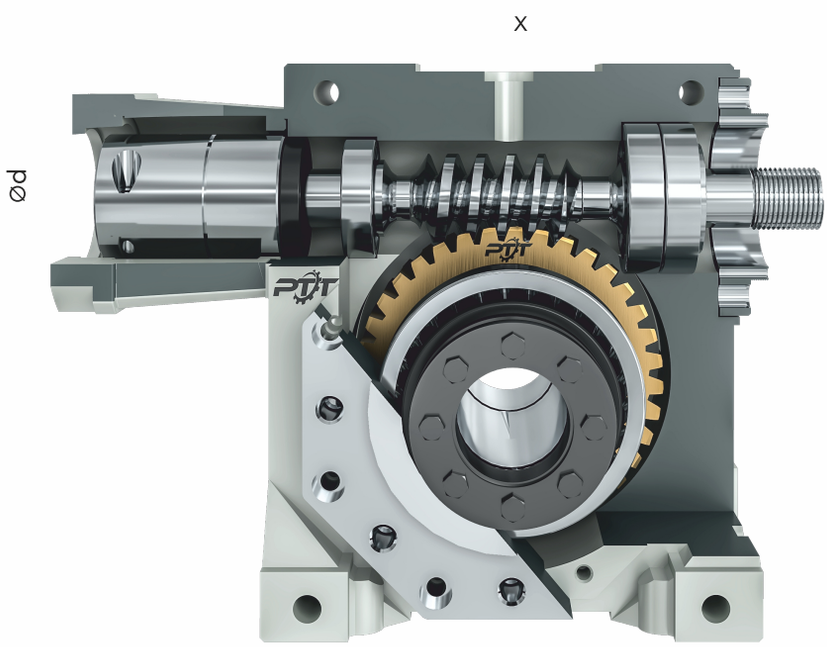
SPECIFICATIONS

- **NWP Series – LOW BACKLASH** Worm Gearbox. The ideal & economic substitute to Planetary Precision Gearbox, where precision motion is needed to be transmitted at right angle [90degree] direction.
- **NWP Series – LOW BACKLASH** Worm Gearbox have following sizes:
  NWP25, NWP35, NWP45, NWP50, NWP55, NWP63, NWP75, NWP90, NWP110.
  (NWP110 having CI body)
- **Low Backlash:** Work shaft of **NWP Series-LOW BACKLASH** Worm Gearbox have dual lead involute teeth profile; it means the right and left flank of worm teeth profile have different lead angle. This cause the gradual change in tooth thickness and which enables to adjust backlash by moving the worm shaft axially. 'X' – Adjustment axial movement for backlash/clearance.



NWP	Adjustment 'X' (mm)	Input shaft hollow diameter (mm)	Co-efficient of Adjustment (mm-1)	Clearance Adjustment (mm)
25	-	9	-	-
35	8	12	0.015 – 0.03	0.12 – 0.24
45	8	15	0.015 – 0.04	0.12 – 0.32
50	8	15	0.015 – 0.03	0.12 – 0.24
55	8	18	0.015 – 0.05	0.12 – 0.40
63	10	20	0.025 – 0.05	0.25 – 0.50
75	13	24	0.020 – 0.06	0.26 – 0.78
90	13	28	0.025 – 0.06	0.33 – 0.78
110	12	32	0.025 – 0.06	0.30 – 0.72

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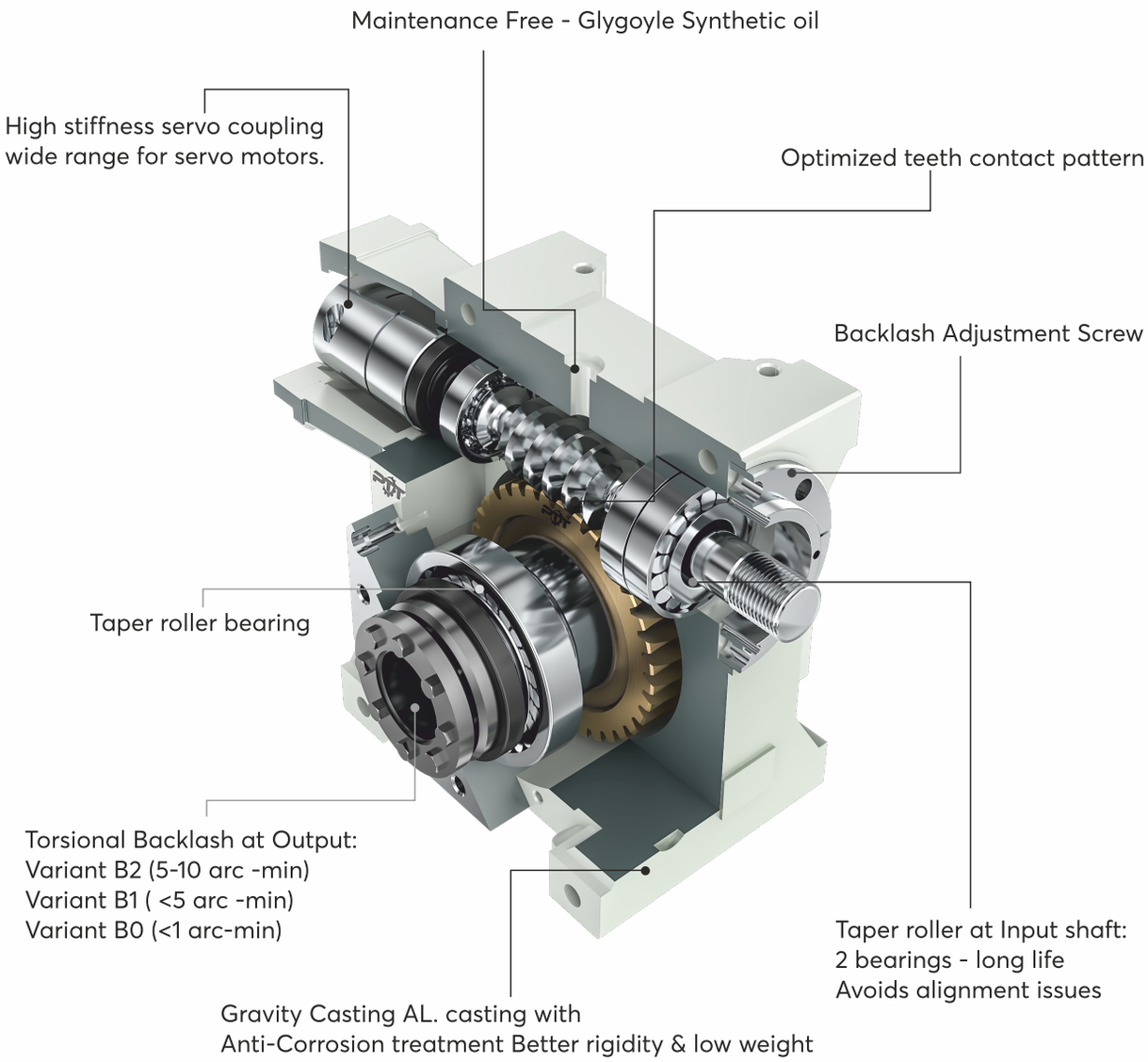
FEATURES



OUTPUT SHAFT OPTIONS

- Hollow output shaft with Shrink disc.
- Hollow output shaft with keyway.
- Solid output shaft with extended on single side or double side.

APPLICATIONS

- Rotary Indexing device with precision.
- Precision Gantry/liner automation.
- Precision pick and place automation.
- Automation Tool Changer – Machine Tool Automation
- Industrial Robots
- Precision Printing Automation

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Formulas for Gear Reducer		
Description	**Formula**	**Unit of measure**
Liner Speed/velocity	$v=\frac{\pi*d*n}{60}$	m/s
Angular Speed/Velocity	ω= v/r	[rad/s]
Angular Acceleration	α= n / (9,55 * t) α= ω / t	$[rad/s^2]$
Starting or stopping time	t =v/a	[s]
Acceleration or deceleration according to a starting / stopping time	a= v / t	$[m/s^2]$
Starting or stopping distance (according to acceleration / deceleration or angular velocity)	$s=\frac{a*t^2}{2}$ or $s=\frac{v*t}{2}$	[m]
Horizontal translation force	F= μ * m * g	[N]
Vertical translation force (lifting)	F= m * g	[N]
Inclined plane translation force	F= m * g (μ * cosβ + senβ)	[N]
Moment Of inertia	$J=\frac{m*v^2}{\omega^2}$	$[kgm^2]$
Torque	$N=\frac{F*d}{2}$ or $N=\frac{J*\omega}{t}$	[Nm]

Basic formula for Motor		
Power available at the shaft of single phase motor	P= V * I * ɲ *cosω	[W]
Power available at the shaft of three phase motor	P= 1,73 * V * I * ɲ * cosω	[W]
Motor Rpm	$n_m=\frac{120*f}{p}$	[rpm]

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DEFINATIONS

RATED OUTPUT TORQUE:
Rated torque is the mechanical torque [max], which the gearbox can resist under Service Factor [s.f]=1 conditions. In other words, this is the torque which can be transmitted continuously through the output shaft, with the gear unit operated under a Service Factor [s_f] =1.

Please note: Rating is speed sensitive.

REQUIRED TORQUE:
This is the application torque. Minimum of this torque is required to operate the machine in loading condition. Value of this torque is recommended to be equal or less than the value of Nr(rated torque) of the gearbox.

CALCULATED OUTPUT TORQUE:
It is a computational torque value which is taken in to consideration at the time of gearbox unit selection. And it requires "REQUIRED TORQUE" and "SERVICE FACTOR" to be taken in to consideration. Please refer below relations…

= Mr2 x Fs <= Mn2

RATED INPUT POWER:
It is a power rating of the gearbox which can be transmitted by gearbox with respect to input speed (rpm) and at service factor =1. It can be found from the gearbox rating chart.

RATED OUTPUT POWER:
It is a power rating of the gearbox which can be transmitted by gearbox at output. Below is the formula to calculate the same

$$P_{n2} = P_{n1} \cdot \eta_d$$

$$P_{n2} = \frac{M_{n2} \cdot \eta_2}{9550}$$

EFFICIENCY:
It is one of the most considerable factor being taken in to consideration at selection of the gearbox. It generally depends on the gear teeth design elements. Value of efficiency of gearbox unit with respect to ratio can be found in the gearbox rating chart on page no. .

There are mainly two type of efficiency **1. Dynamic Efficiency & 2. Static Efficiency**

1. **Dynamic Efficiency:** Dynamic efficiency is the relationship of the power delivered at the output shaft P2 to the power applied at the input shaft P1.
2. **Static Efficiency:** This efficiency is applicable at the start-up of the gearbox. It is not a major factor for consideration. However it may be critical when selecting worm gearboxes operating under intermittent duty.

MOMENT OF INERTIA
This is only referring to the input shaft of the gear unit and they can be simply added to the inertia of the motor when gearbox is combined to the motor.

SERVICE FACTOR
It is a safety coefficient, which takes into account the different running conditions of the driven machine. It takes into consideration, with unavoidable approximation, daily operating conditions, load variations and overloads connected with the reducer application.

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MODEL NOMENCLATURE

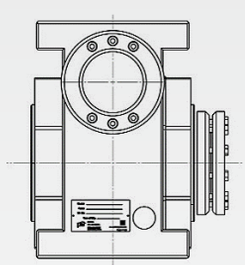
MODEL	RATIO	OUTPUT SHAFT TYPE	BACKLASH	MOUNTING POSITION	MOTOR [IF ANY]
NWP45	30	HL	B1	B3	—

- MODEL: NWP25, NWP35, NWP45, NWP50, NWP55, NWP63, NWP75, NWP90, NWP110
- RATIO: 14.5, 19.5, 24.5, 30, 40, 50, 60, 80, 100
- OUTPUT SHAFT TYPE:
  - **HL** (Hollow shaft for shrink disc on Left)
  - **HR** (Hollow shaft for shrink disc on Right)
  - **2H** (Hollow shaft for double shrink disc)
  - **K** (Hollow shaft with keyway)
  - **SL** (Single Extended output solid shaft on Left side)
  - **SR** (Single Extended output solid shaft on Right side)
  - **2S** (double extended output solid shaft)
- BACKLASH: B2 (5-10 arc -min), B1 (<5 arc -min), B0 (<1 arc-min)
- MOUNTING POSITION: B3, B6, B7, B8, V5, V6
- MOTOR [IF ANY]: Motor model number if any, given by customer

Note: As a default, If not specified by customer, the our NWP series gearbox are supplied with 'K' hollow shaft for keyway, 'B3' mounting position and 'B1 backlash range.

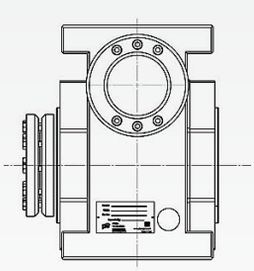
OUTPUT SHAFT TYPE

HL



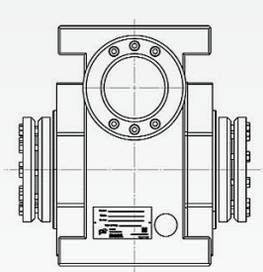
HOLLOW SHRINK DISC LEFT

HR



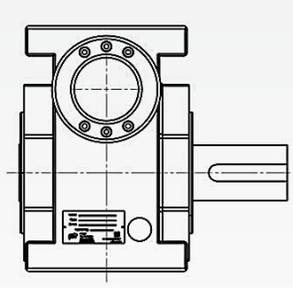
HOLLOW SHRINK DISC RIGHT

2H



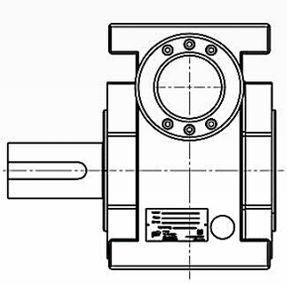
HOLLOW SHRINK DISC DOUBLE END

SL



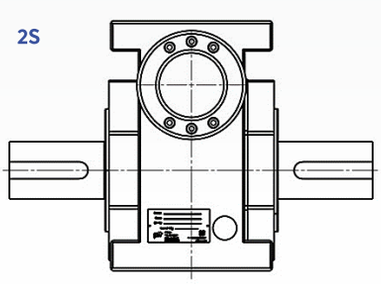
SOLID SHAFT LEFT

SR



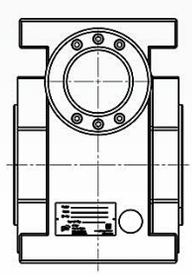
SOLID SHAFT RIGHT

2S



SOLID SHAFT DOUBLE END

K



HOLLOW SHAFT WITH KEYWAY

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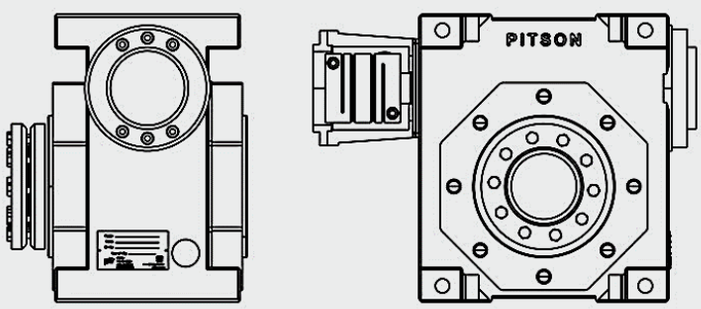
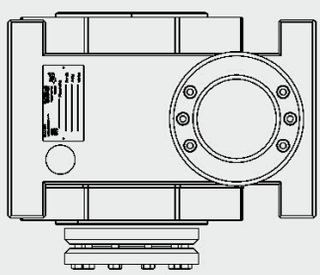
MOUNTING POSITIONS

B3



B6



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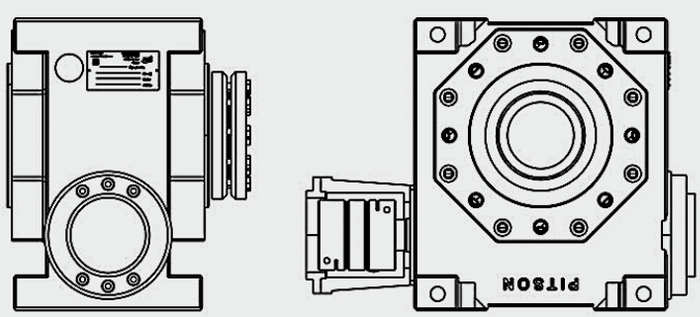
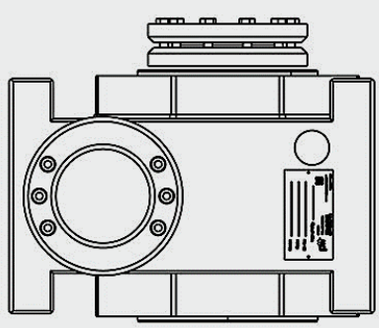
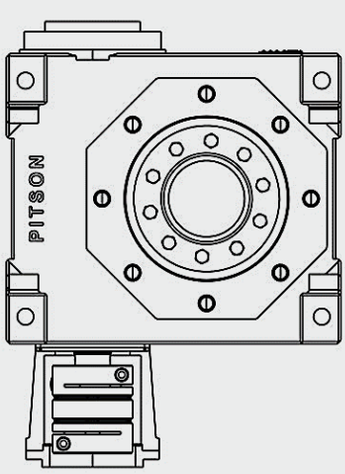


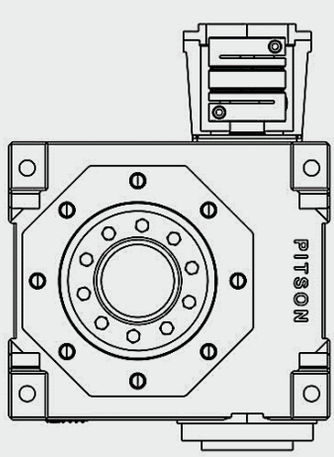
B7



V6



V5



NWP PERFORMANCE TABLE

n1		4000			3000			2000			1000								
NWP	**i**	**M_2 Nm**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**E-stop**	**C1f**	**ig**	**Et**	**Fr 2 [N]**	**Fa2 [N]**
025	5.2*	8	13	88	9	15	87	11	18	86	14	23	84	46	0.03	2.2×10^{-6}	2	1500	500
	7.25 *	8	14	87	9	15	86	11	18	85	14	24	82	46	0.03	1.51×10^{-6}	2	1500	500
	10.25 *	8	13	86	8	14	85	11	18	84	14	23	81	46	0.03	1.15×10^{-6}	2	1500	500
	14.5	9	15	81	11	18	79	12	20	77	16	26	74	46	0.03	9.58×10^{-7}	2	1500	500
	19.5	9	15	78	11	18	76	12	20	74	16	26	70	46	0.03	8.67×10^{-7}	2	1500	500
	30	11	18	70	12	20	68	14	23	65	17	29	60	46	0.03	8×10^{-7}	2	1500	500
	45	11	18	64	11	19	62	14	23	59	17	28	53	42	0.03	7.77×10^{-7}	2	1500	500
	60	10	16	59	11	19	56	13	21	53	15	25	48	35	0.03	7.6×10^{-7}	2	1500	500
035	5.2*	16	27	93	18	31	92	22	36	91	29	48	89	96	0.3	7.4×10^{-6}	5	3800	2800
	7.25 *	17	28	91	19	32	90	23	37	89	30	48	86	96	0.3	5.6×10^{-6}	5	3800	2800
	10.25 *	17	29	89	20	34	88	23	39	87	30	51	81	96	0.3	5×10^{-6}	5	3800	2800
	14.5	19	31	85	22	35	83	26	41	81	33	52	77	96	0.3	4.4×10^{-6}	5	3800	2800
	19.5	20	32	82	22	35	80	26	42	78	33	50	73	96	0.2	4.2×10^{-6}	5	3800	2800
	30	23	37	74	25	40	72	29	46	69	36	58	63	96	0.2	4×10^{-6}	5	3800	2800
	45	23	36	68	25	40	65	28	45	61	35	56	56	87	0.2	3.9×10^{-6}	5	3800	2800
	60	22	34	62	24	37	59	27	41	55	34	50	50	73	0.1	3.1×10^{-6}	5	3800	2800
	90	21	32	53	23	35	50	26	39	46	32	46	41	72	0.1	2.31×10^{-6}	5	3800	2800
045	5.2*	36	62	94	41	70	93	50	83	92	67	109	91	214	0.4	2.9×10^{-5}	9	5800	4000
	7.25 *	42	71	93	48	80	92	57	93	91	76	121	89	214	0.4	2.2×10^{-5}	9	5800	4000
	10.25 *	46	80	92	53	88	91	62	98	90	80	128	88	214	0.4	1.5×10^{-5}	9	5800	4000
	14.5	52	83	88	59	94	87	68	109	86	88	141	82	214	0.4	1.4×10^{-5}	9	5800	4000
	19.5	50	80	87	55	88	86	64	102	84	81	129	80	214	0.3	1×10^{-5}	9	5800	4000
	30	55	88	80	61	98	78	70	112	76	88	141	71	214	0.3	1×10^{-5}	9	5800	4000
	45	54	86	75	59	94	72	68	109	69	83	133	64	185	0.3	8.2×10^{-6}	9	5800	4000
	60	50	78	70	55	86	68	62	97	64	75	116	59	170	0.2	7.3×10^{-6}	9	5800	4000
	90	46	71	62	50	76	59	57	86	56	68	99	50	154	0.2	4.6×10^{-6}	9	5800	4000
055	5.2*	60	103	94	68	116	94	82	137	93	111	181	91	307	0.6	7.5×10^{-5}	20	7000	4800
	7.25 *	65	111	93	74	125	92	90	147	91	118	188	89	307	0.6	5.3×10^{-5}	20	7000	4800
	10.25 *	76	132	90	87	145	89	103	165	88	133	206	85	307	0.6	4.5×10^{-5}	20	7000	4800
	14.5	71	115	88	82	133	87	96	155	85	123	190	82	307	0.6	3.8×10^{-5}	20	7000	4800
	19.5	77	123	87	87	139	85	101	162	83	128	205	80	307	0.4	3.1×10^{-5}	20	7000	4800
	30	83	130	80	94	148	78	109	169	75	136	202	70	307	0.4	3.4×10^{-5}	20	7000	4800
	45	83	130	74	93	145	72	106	163	69	131	202	63	307	0.4	2.8×10^{-5}	20	7000	4800
	60	82	128	69	91	141	67	103	158	63	126	194	58	286	0.3	2.6×10^{-5}	20	7000	4800
	90	76	117	62	82	125	59	94	142	55	113	164	49	263	0.3	1.2×10^{-5}	20	7000	4800
063	5.2*	90	153	95	105	179	94	126	210	93	169	275	91	497	0.8	1.6×10^{-4}	36	8800	8500
	7.25 *	91	155	94	103	174	93	125	206	92	165	264	90	497	0.8	9×10^{-5}	36	8800	8500
	10.25 *	103	169	93	118	194	92	141	231	91	181	290	89	497	0.8	8×10^{-5}	36	8800	8500
	14.5	110	179	90	128	207	89	149	240	87	191	293	84	497	0.8	6.9×10^{-5}	36	8800	8500
	19.5	119	190	88	135	215	87	156	250	85	199	318	82	497	0.5	5.5×10^{-5}	36	8800	8500
	30	138	218	82	155	245	80	179	281	78	223	335	73	497	0.5	5.9×10^{-5}	36	8800	8500
	45	123	193	77	137	214	75	156	239	72	193	287	67	403	0.5	5×10^{-5}	36	8800	8500
	60	121	189	73	134	205	71	151	233	67	186	288	62	404	0.4	4.7×10^{-5}	36	8800	8500
	90	110	169	65	121	184	63	137	207	59	166	241	53	368	0.4	3.2×10^{-5}	36	8800	8500
075	5.2*	147	252	95	174	296	94	209	349	94	282	459	92	834	1	3.7×10^{-4}	50	10500	10500
	7.25 *	139	236	94	161	270	93	196	321	92	256	409	90	834	1	2.5×10^{-4}	50	10500	10500
	10.25 *	146	234	93	168	269	92	204	326	91	261	418	88	834	1	2.2×10^{-4}	50	10500	10500
	14.5	170	276	90	195	315	88	234	376	87	298	460	84	834	1	1.9×10^{-4}	50	10500	10500
	19.5	168	270	88	194	310	87	227	362	85	288	434	81	834	0.6	1.5×10^{-4}	50	10500	10500
	30	186	294	84	212	334	82	248	386	80	309	460	75	834	0.6	1.6×10^{-4}	50	10500	10500
	45	190	299	76	212	331	74	244	383	71	301	472	65	718	0.6	1.4×10^{-4}	50	10500	10500
	60	175	272	72	195	300	69	221	334	66	272	395	60	657	0.5	1.3×10^{-4}	50	10500	10500
	90	167	257	64	184	280	62	209	316	57	255	370	52	625	0.5	8×10^{-5}	50	10500	10500

n1		4000			3000			2000			1000								
NWP	**i**	**M_2 Nm**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**M_2 [Nm]**	**M_5 [Nm]**	**η_d Effi.**	**E-stop**	**C1f**	**ig**	**Et**	**Fr 2 [N]**	**Fa2 [N]**
090	5.2*	227	387	95	271	460	95	327	546	94	445	725	92	1543	1.5	8.5×10^{-4}	75	15800	13000
	7.25 *	263	460	95	306	490	95	373	597	94	490	784	92	1534	1.5	6×10^{-4}	75	15800	13000
	10.25 *	273	478	94	314	528	93	383	627	92	488	781	90	1543	1.5	3.8×10^{-4}	75	15800	13000
	14.5	272	444	91	314	504	90	380	612	88	486	748	85	1543	1.5	3.2×10^{-4}	75	15800	13000
	19.5	318	506	90	367	584	88	431	685	87	544	865	84	1543	0.8	2.5×10^{-4}	75	15800	13000
	30	316	500	84	362	572	82	424	661	80	531	792	75	1543	0.8	2.6×10^{-4}	75	15800	13000
	45	343	538	80	385	599	79	441	674	76	546	811	71	1255	0.8	1.9×10^{-4}	75	15800	13000
	60	328	512	77	364	559	75	412	622	72	507	761	67	1230	0.5	1.7×10^{-4}	75	15800	13000
	90	298	459	70	332	505	68	372	562	64	460	667	59	1114	0.5	1×10^{-4}	75	15800	13000
110	5.2*	390	666	95	458	779	95	561	937	94	760	1239	92	2289	2	1.85×10^{-3}	120	21500	16000
	7.25 *	417	680	95	488	795	95	599	976	94	802	1307	92	2289	2	1.3×10^{-3}	120	21500	16000
	10.25 *	449	786	94	522	878	93	638	1047	92	827	1323	90	2289	2	8.5×10^{-4}	120	21500	16000
	14.5	450	720	92	519	830	91	630	1014	90	810	1247	87	2289	2	6.3×10^{-4}	120	21500	16000
	19.5	510	815	91	589	943	90	705	1121	88	893	1349	85	2289	1	4.6×10^{-4}	120	21500	16000
	30	597	955	87	688	1100	85	812	1299	83	1015	1512	79	2289	1	3.5×10^{-4}	120	21500	16000
	45	583	915	82	665	1037	80	765	1168	78	947	1411	73	2152	1	3.3×10^{-4}	120	21500	16000
	60	522	815	79	588	905	77	669	1030	73	826	1239	68	2094	0.8	3×10^{-4}	120	21500	16000
	90	497	765	72	557	847	70	625	944	66	778	1128	60	1941	0.8	1.7×10^{-4}	120	21500	16000

*Ratio 5.2, 7.25, 10.25 will take longer delivery time

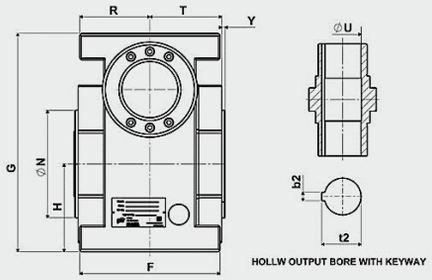
Other Ratios Performance Table

n1		3000				1400				900					
NWP	**i**	**η_d Effi.**	**P_1 [kW]**	**M_2 [Nm]**	**n_2 [min^{-1}]**	**η_d Effi.**	**P_1 [kW]**	**M_2 [Nm]**	**n_2 [min^{-1}]**	**η_d Effi.**	**P_1 [kW]**	**M_2 [Nm]**	**n_2 [min^{-1}]**	**Fr_2 [N]**	**Fa_2 [N]**
045	24.5(1)	0.79	0.7	**47**	122.4	0.74	0.4	**55**	57.1	0.68	0.3	**61**	36.7	5800	4000
	40(1)	0.69	0.6	**49**	75	0.64	0.3	**57**	35.0	0.58	0.3	**62**	22.5	5800	4000
	50(1)	0.66	0.5	**50**	60	0.61	0.3	**58**	28.0	0.55	0.2	**63**	18	5800	4000
050	14.5	0.85	1.4	**57**	206.9	0.80	0.9	**74**	96.6	0.74	0.7	**84**	62.1	5800	4000
	19.5	0.82	1.0	**53**	153.8	0.77	0.7	**73**	71.8	0.71	0.5	**77**	46.2	5800	4000
	24.5(1)	0.79	0.8	**51**	122.4	0.74	0.6	**70**	57.1	0.68	0.4	**75**	36.7	5800	4000
	30	0.75	0.9	**64**	100	0.70	0.6	**84**	46.7	0.64	0.4	**90**	30	5800	4000
	40(1)	0.7	0.7	**59**	75	0.65	0.4	**76**	35.0	0.59	0.3	**82**	22.5	5800	4000
	50(1)	0.66	0.5	**53**	60	0.61	0.4	**73**	28.0	0.55	0.3	**77**	18	5800	4000
	60	0.62	0.4	**50**	50	0.57	0.3	**68**	23.3	0.51	0.2	**72**	15	5800	4000
055	24.5(1)	0.8	1.4	**92**	122.4	0.75	0.8	**108**	57.1	0.69	0.7	**120**	36.7	7000	4800
	40(1)	0.71	1.0	**94**	75	0.66	0.6	**111**	35.0	0.6	0.5	**121**	22.5	7000	4800
	50(1)	0.67	0.9	**92**	60	0.62	0.5	**108**	28.0	0.56	0.4	**117**	18	7000	4800
	80(1)	0.58	0.6	**88**	37.5	0.53	0.4	**102**	17.5	0.47	0.3	**109**	11.3	7000	4800
063	24.5(1)	0.82	1.4	**92**	122.4	0.77	1.0	**130**	57.1	0.71	0.7	**137**	36.7	8800	8500
	40(1)	0.74	1.1	**108**	75	0.69	0.8	**145**	35.0	0.63	0.6	**160**	22.5	8800	8500
	50(1)	0.70	0.9	**100**	60	0.65	0.6	**135**	28.0	0.59	0.5	**145**	18	8800	8500
075	24.5(1)	0.84	2.2	**150**	122.4	0.79	1.5	**200**	57.1	0.73	1.1	**215**	36.7	10500	10500
	40(1)	0.76	1.7	**165**	75	0.71	1.1	**220**	35.0	0.65	0.9	**240**	22.5	10500	10500
	50(1)	0.73	1.3	**150**	60	0.68	0.9	**210**	28.0	0.62	0.7	**220**	18	10500	10500
	80(1)	0.64	0.8	**130**	37.5	0.59	0.6	**190**	17.5	0.53	0.4	**200**	11.3	10500	10500
090	24.5(1)	0.86	3.7	**250**	122.4	0.81	2.5	**340**	57.1	0.75	1.9	**370**	36.7	15800	13000
	40(1)	0.79	2.7	**275**	75	0.74	1.8	**360**	35.0	0.68	1.4	**410**	22.5	15800	13000
	50(1)	0.76	2.2	**265**	60	0.71	1.4	**340**	28.0	0.65	1.1	**390**	18	15800	13000
	80(1)	0.67	1.3	**225**	37.5	0.62	0.8	**285**	17.5	0.56	0.7	**315**	11.3	15800	13000
	100(1)	0.63	1.0	**200**	30	0.58	0.7	**270**	14.0	0.52	0.5	**280**	9	15800	13000

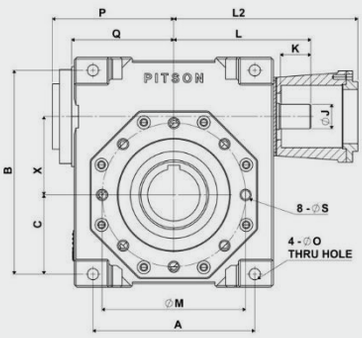
(1) Note: For adding ratio 24.5,40, 50, 80 & 100 it will take longer delivery lead time

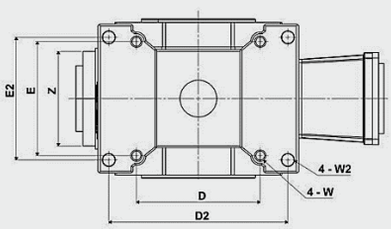
DIMENSIONS

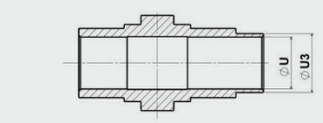
PITSON TRANSMISSION TECHNOLOGIES
Gearing Solutions



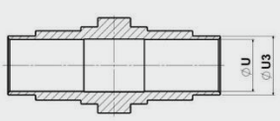
HOLLW OUTPUT BORE WITH KEYWAY



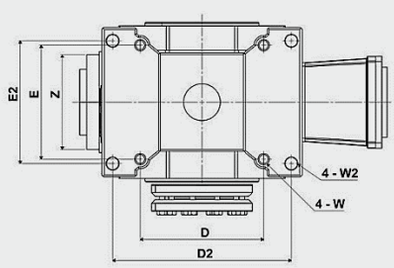


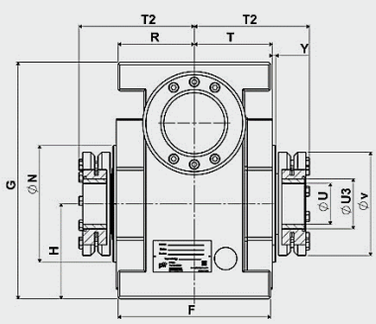


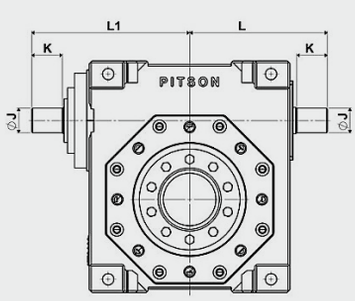
HOLLOW OUTPUT BORE WITH SHRINK DISK

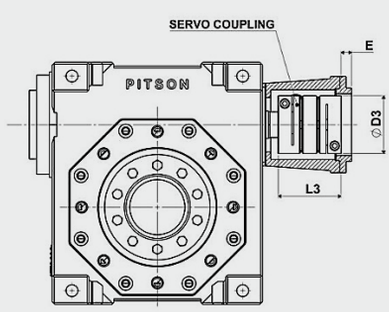


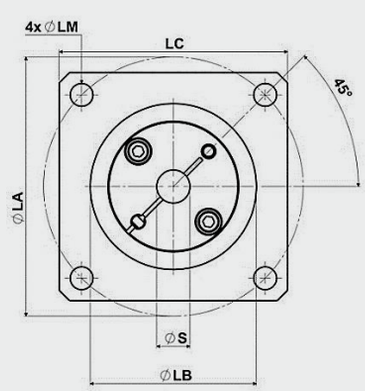
HOLLOW OUTPUT BORE WITH DOUBLE SHRINK DISK

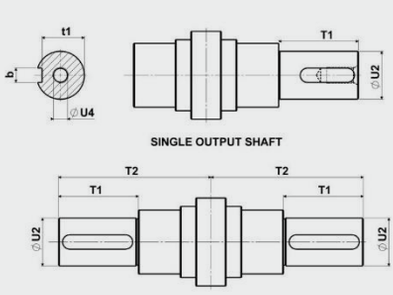


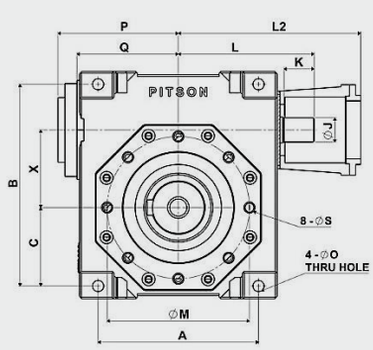


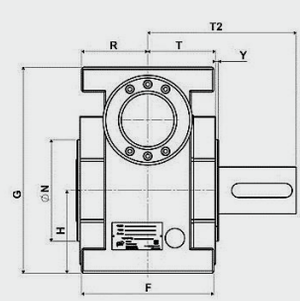












DIMENSIONS TABLE

PITSON TRANSMISSION TECHNOLOGIES
Gearing Solutions

Dimensions	025	035	045	050	055	063	075	90	110
A	66	86	108	108	120	134	172	186	220
B	84	110	135	138	155	173	208	234	276
C	33	44.5	53	53	61	66	82	91	108
D	49.5	62	81	81	90	98	136	141	175
D2	-	-	114	114	125	140	172	204	-
D3	29	39	44	44	56	56	68	68	68
E	44	56	68	68	78	91	110	130	140
E2	-	-	84	84	96	108	125	140	-
E3	5	5	5	5	6.5	6.5	6.5	6.5	6.5
F	64	86	100	100	112	127	148	170	182
G	96	126	153	156	175	197	232	264	306
H	39	52.5	62	62	71	78	94	106	123
J(h6)	9	12	15	15	18	20	24	28	32
K	10	17	24	24	28	30	35	35	36
L(min+V)	53	78.5+V	98.5+V	98.5+V	111+V	122+V	147+V	157+V	177+V
L1(min-V)	70	98.5-V	119.5-V	117.5-V	133-V	144-V	172-V	183-V	199-V
L2	55+LR	88+LR	103+LR	103+LR	116+LR	127+LR	152+LR	162+LR	190+LR
L3	32.8	48	48	48	59.8	59.8	73.3	73.3	73.3
M	65	65	85	85	100	115	130	165	200
N	55	50	70	70	80	95	110	130	165
O	6.2	7	9	9	9	11	11	13	13
P	52	76.5	91	91	100	108	129	139.5	157
Q	42	55	70.5	70.5	78	87	107	117.5	132
R	32	43	50	50	56	63.5	74	85	91
S	M5	M6	M8	M8	M8	M8	M10	M12	M12
T	32	43	52	52	58	65.5	76	87	92
T1	30	38	55	55	60	70	75	100	115
T2	65	83	110	110	121.5	139	155	191	208
U(H7)	14	16	25	25	30	35	40	50	60
U2(h6)	18	25	35	35	40	45	50	65	75
U3	16	24	30	30	36	44	50	68	80
U4	M8	M10	M12	M12	M16	M16	M16	M20	M20
W	M5	M6	M8	M8	M8	M10	M10	M12	M12
W2	-	-	9	9	9	10	12	14	-
X	25	35	45	50	55	63	75	90	110
Y	3	3	3	3	3.5	3.5	4	4	5
Z	56	73	86	86	86	93	108	108	138
t1	14.5	21	30	30	35	39.5	44.5	58	67.5
b	6	8	10	10	12	14	14	18	20
LA/LB/LC/LR/LM/S	AS PER SERVO MOTOR								

PITSON TRANSMISSION TECHNOLOGIES
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SYMBOLS AND UNITS OF MEASURE

Symbol	Unit	Description
P	Kw	Power
P1	Kw	Transmitted power at input shaft
P2	Kw	Transmitted power at output shaft
Pn1	Kw	Rated input power
Mn1	Nm	Motor rated torque
M2	Nm	Transmitted torque at output shaft
Mc2	Nm	Calculated torque at output shaft
Mn2	Nm	Rated torque at output shaft
Mc5	Nm	Calculated Output acceleration torque
Mn5	Nm	Rated acceleration torque
Mr2	Nm	Required torque at output shaft
n1	Rpm	Input rpm
n2	Rpm	Output rpm
i	-	Gear Ratio
d	-	Dynamic efficiency
s	-	Static efficiency
fs	-	Service Factor
Je	Kg.m2	Moment of the external inertia reduced at the drive shaft
Jm	Kg.m2	Moment of inertia of motor
Fr1	N	Input shaft radial load
Fr2	N	Output shaft radial load
Fa2	N	Output shaft axial load
E-stop	Nm	Output emergency torque (2 seconds duration maximum)
C1f	Nm	Starting input friction torque
ig	Kg.m2	Polar moment of inertia on input
Et	Nm/arc min.	Torsional stiffness on output

PITSON TRANSMISSION TECHNOLOGIES
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Note

PITSON TRANSMISSION TECHNOLOGIES
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