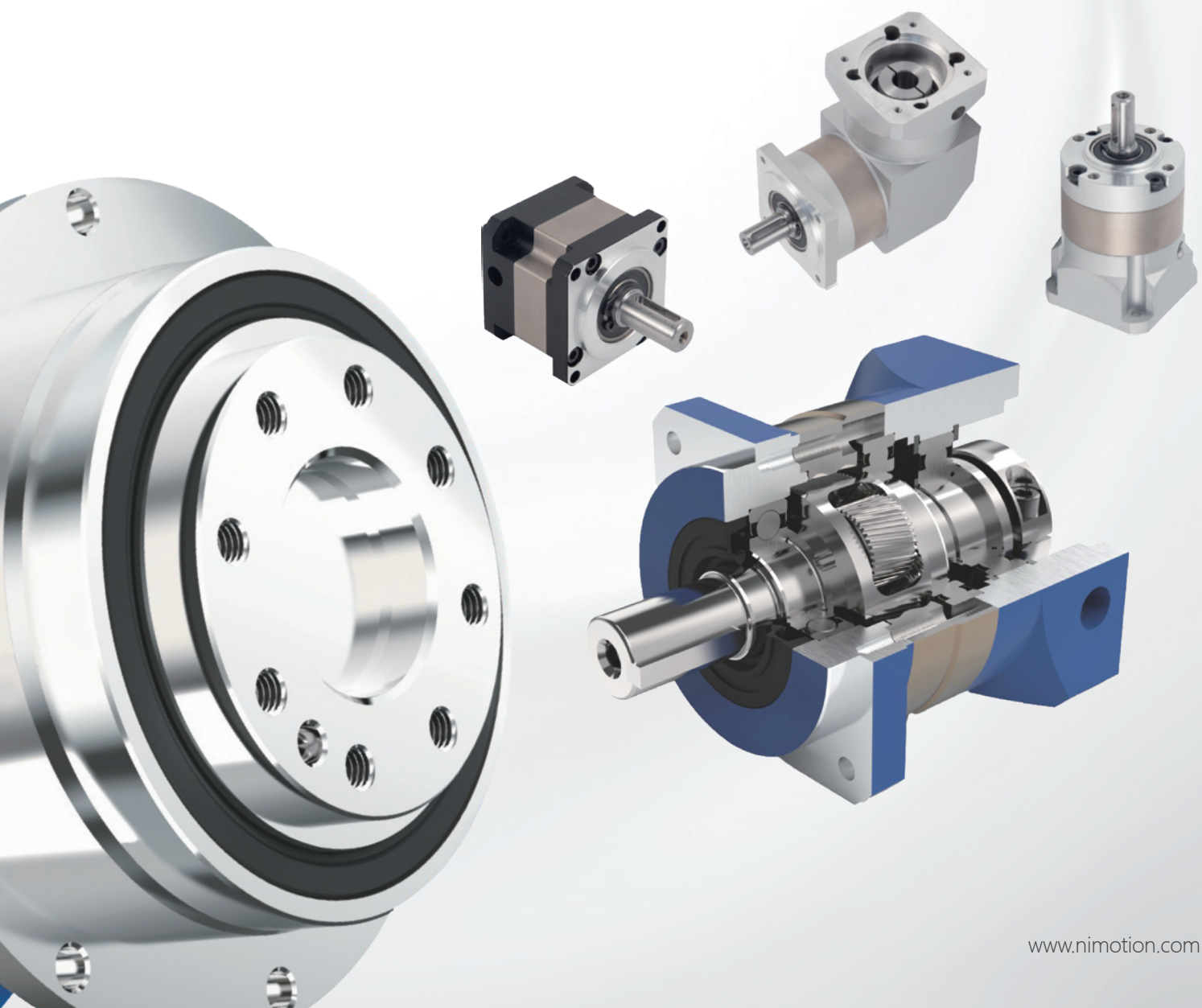
NiMotion®

Precision planetary reducer

· Standard straight gear planetary reducer



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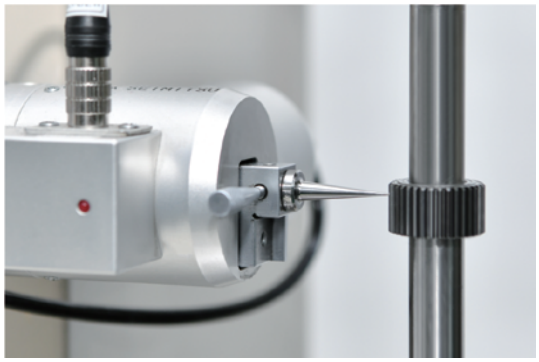
We have a professional quality management team that applies scientific quality management standards and utilizes advanced testing equipment to strictly control the quality of products at every stage ensuring the provision of high-quality products to our customers.

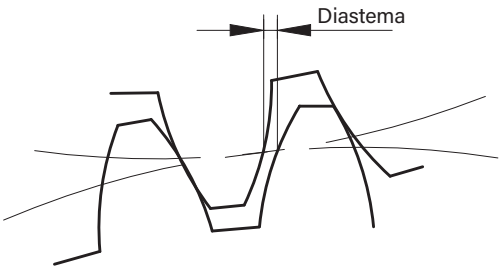


Precision Inspection Center

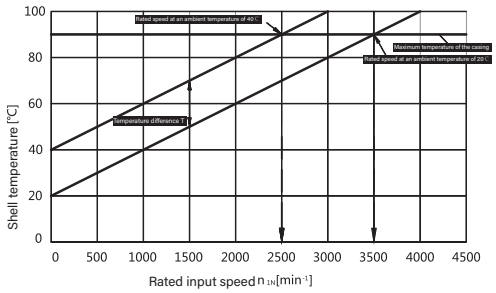
Basic concepts related to model selection

Ratio	Input speed/Output speed
Rated input speed n_1[rpm]	The driving speed of the reducer, if the speed of the reducer and the motor is the same. The rated input speed in this book was measured under an ambient temperature of 20℃. When the ambient temperature is high, please reduce the rotational speed n.
Poles	The number of sets of planetary reducers. Since a single set of planetary reducers cannot meet the requirement of a large transmission ratio, sometimes two sets or more are needed to satisfy the user's demand for a larger transmission ratio. That is to say, the larger the reduction ratio, the more sections/ stages there are. Due to the increase in the number of planetary gears, the length of the secondary reducer has increased, and its efficiency will decline.
Efficiency	It refers to the transmission efficiency of the reducer under rated load conditions. The greater the redu ction ratio and the more stages there are, the lower the efficiency will be.
Backlash	The maximum angular deviation between the output shaft and the input shaft of the reducer is measured. First, fix the gear input shaft, and then apply a certain torque (2%T) to the output shaft with a torque meter to overcome the friction force inside the reducer.
Noise	The unit is decibels (dB). This value was measured when the input speed was 3000 revolutions per minute, without load, at a distance of one meter from the reducer.
Rated output torque T_N[Nm]	The torque that the T[Nm] reducer can load for a long time (in continuous operation mode) without wear should meet the conditions of uniform load, safety factor S=1, and models below AF140. The theoretical service life is 20,000 hours: For models AF180 and above, the theoretical service life is 10,000 hours: The T value complies with the ISODP6336 gear standard and ISO281 bearing standard.
Maximum output torque T_{2max}	It refers to the output torque that the reducer can withstand under static conditions or frequent start-up conditions, usually referring to peak load or start-up load.
Axis Extension Radial Load and Axis Load	The additional basis for selecting a reducer is the radial load and axial load at the extended end of the output shaft. The strength of the shaft and the load-bearing capacity of the bearing determine the radial load of the allowable shaft extension. The maximum allowable value given in the product sample refers to the force acting at the midpoint of the extended end of the axis (i.e., at 1/2L) in the most unfavorable directi on. When the force is not applied at the midpoint, the closer to the shoulder of the shaft, the greater the allowable radial load. On the contrary, the farther the point of action is from the shaft shoulder, the smaller the allowable radial load will be.
Installation Torque [Nm]	The assembly of the reducer and the connection and installation between the motor and the reducer (the input shaft is required to use an elastic coupling) both have torque requirements. It is recommended to use a torque wrench to complete the installation

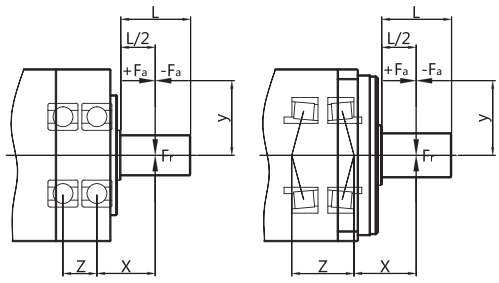
Explanation of professional Terms



Positioning accuracy: The key to achieving precise positioning in high-speed mechanical reciprocating motion lies in minimizing the angular deviation caused by the motion. Positioning accuracy depends on two values: one is the deflection Angle related to loading, which involves the backlash and torsional stiffness; the other is the deflection Angle related to motion control, which involves the issue of synchronization deviation.
Moment of inertia J [Kgcm^2] : It represents a value of an object's characteristic of striving to maintain its rotational state (either stationary or rotating). The values in the sample all refer to the input end.
Arc minutes [Arcmin]: One degree is divided into 60 arc minutes (=60Arcmin=60'). If the backlash is marked as 1 Arcmin, it means that the angular deviation at the output end of the gearbox for one full rotation is 1/60°. In practical applications, this angular deviation is related to the shaft diameter b=2 · π · r · a°/360. That is to say, when the radius of the output end is 500mm and the accuracy of the gearbox is jt=3', the deviation of one revolution of the gearbox is b=0.44mm.
Backlash it [Arc min] : It refers to the maximum deviation Angle between the output shaft of the reducer and the input end. When measuring, first fix the input end of the gear, and then apply a certain torque (2%T2B) at the output end with a torque meter to overcome the frictional force inside the reducer.



Speed ratio i: It represents the values of the three main parameters for the reducer to change a certain motion, that is, to change the rotational speed, torque and moment of inertia through the speed ratio of the reducer.
Noise [dB]: The complete set of equipment adopts low-noise reducers, which is conducive to environmental protection and health protection. The speed ratio and rotational speed directly affect the noise level. Generally, the higher the rotational speed, the greater the noise. The greater the speed ratio, the less noise. The values in the sample were measured when the input speed was 3000rpm/min, without load, and at a distance of one meter from the reducer.
Average service life [h]: It refers to the continuous working time of the reducer under rated load and rated input speed.
Speed (n): When selecting a reducer, the two speeds that must be considered are the maximum input speed and the rated input speed. When selecting a reducer for intermittent operation, it is necessary to consider that the maximum input speed n1max should not be exceeded. When selecting a reducer for continuous operation, it is necessary to consider that the maximum rated speed n1N should not be exceeded. The rated speed is limited by the temperature of the reducer housing, which must not exceed 90℃. As can be seen from the following figure, the higher the ambient temperature is, the earlier the temperature of the reducer reaches the rated temperature. In other words, the rotational speed must be reduced when the ambient temperature is high.



Rated input speed n,[rpm]: The driving speed of the reducer. If the reducer is directly connected to the motor, the speed value is the same as that of the motor. The rated input speed in this book was measured under an ambient temperature of 20° C. When the ambient temperature is higher, please reduce the speed by n.
Transmission efficiency n: The loss caused by friction always makes the efficiency less than 1, that is, less than 100%. The efficiency on the sample is the transmission efficiency of the reducer when the gearbox is operating at full load.
Rated output torque [Nm]: It refers to the torque that the reducer can load for a long time (continuous operation mode) without wear. The conditions should meet the requirements of uniform load, safety factor S=1, and theoretical service life of 20,000 hours. The T2N value complies with the ISODP6336 wheel standard and the ISO 281 bearing standard.
No-load torque [Nm]: It refers to the moment of torque applied to the reducer to overcome the friction force inside the gearbox. The values marked on the sample were measured at a rotational speed of 3000rpm and an ambient temperature of 20 ℃.
Axial force FaMax[N]: It refers to a force parallel to the axis. It is parallel to the output shaft. When there is a certain axial deviation (y) between its point of action and the end of the output shaft, an additional bending torque will be formed. When the axial force exceeds the rated value shown in the sample, a coupling must be used
The shaft joint is used to counteract this bending force.

Selection instructions for Spur gear Reducers

The selection of a reducer should take into account its structural type, installation form, load-bearing capacity, and the load-bearing capacity of the machine. It is determined under the condition that it operates at the rated speed for 10 hours a day, starts less than 10 times per hour, and operates smoothly without shock. When the actual working conditions do not match the above conditions, it is necessary to calculate the actual required load-bearing capacity to accurately select the reducer that meets one's own needs. The steps for selection are as follows:

(一) Conventional selection

1) Determine the usage coefficient (f)
Please select the correct usage factor (f) from the following table based on the load type, the number of starts and stops per hour, and the expected working life.

Use coefficient (fs)						
Load type	Number of starts per hour(z)	Daily operating time(h)				
		h < 4	4 < h < 8	8 < h < 12	12< h < 16	16< h< 24
Uniform load	Z < 10	0.85	0.95	1.00	1.20	1.60
	10<Z < 30	0.90	1.10	1.15	1.40	1.80
	30< Z < 100	1.00	1.20	1.30	1.60	2.00
Medium load	Z < 10	1.00	1.20	1.30	1.60	2.00
	10 < Z< 30	1.10	1.35	1.45	1.80	2.20
	30< Z < 100	1.20	1.45	1.60	2.00	2.40
Heavy load	Z < 10	1.20	1.45	1.60	2.00	2.40
	10 < Z < 30	1.30	1.55	1.75	2.20	2.60
	30< Z < 100	1.40	1.65	1.90	2.40	2.80

2) Calculate the torque (T.) for calculation.
Please calculate the torque TC for calculation based on the required torque T. The formula is T=Tz xfs
3) Find the transmission ratio (i)
From the required output speed n2 and input speed n, it is obtained. The formula is $i=\frac{n_1}{n_2}$
4) Determine the model of the reducer
After determining the torque T for calculation and the transmission ratio i, these two parameters can be used to select from the rated parameter table in the reducer sample directory
The model of the reducer whose transmission ratio i and rated torque T are closest to the calculated values. However, the rated torque T of the selected reducer must be greater than the torque T used for calculation. That is, T⩾T.
5) Check the interface of the reducer
After the model of the reducer is selected, it is also necessary to check whether the connection dimensions of its input, output and installation parts meet the actual requirements. If the interface of the reducer in the sample is not applicable to the interface of the IEC motor to be installed, please provide us with the model of the motor and the name of the manufacturer, and our technicians will handle it on your behalf.

(二) High-demand selection

If there is a high reliability requirement for the use of the reducer, the reducer can be selected in the following way
1) Determine the usage factor (f)
Please select the correct usage factor (f) from the following table based on the load type, the number of starts and stops per hour, and the expected working life.

Use coefficient (fs)						
Load type	Number of starts per hour(z)	Daily operating time(h)				
		h < 4	4 < h < 8	8 < h < 12	12< h < 16	16< h< 24
Uniform load	Z< 10	0.85	0.95	1.00	1.20	1.60
	10 < Z < 30	0.90	1.10	1.15	1.40	1.80
	30< Z < 100	1.00	1.20	1.30	1.60	2.00
Medium load	Z< 10	1.00	1.20	1.30	1.60	2.00
	10 < Z< 30	1.10	1.35	1.45	1.80	2.20
	30< Z < 100	1.20	1.45	1.60	2.00	2.40
Heavy load	Z< 10	1.20	1.45	1.60	2.00	2.40
	10 < Z < 30	1.30	1.55	1.75	2.20	2.60
	30< Z < 100	1.40	1.65	1.90	2.40	2.80

2) Safety factor [S.1

For high-power and high-torque reducers, when selecting the type, we should also take into account the safety factor (S) to enhance the reliability of the equipment

Usage requirements	Minimum safety factor	Explanation
High reliability	1.5-1.7	High safety requirements mean that the failure of the reducer will only cause equipment and personal accidents.
Higher reliability	1.3-1.5	For important equipment, the failure of the reducer will only lead to the shutdown of the unit, production line or the entire plant
General reliability	1.1 - 1.3	For general equipment, the failure of a reducer only leads to the shutdown of the entire machine, and it is easy to replace spare parts.

3) Calculate the torque (T.) for calculation.

Please calculate the torque T for calculation based on the required torque T. The calculation formula is T =Tzxf; xS

4) Find the transmission ratio (i)

From the required output speed n2 and input speed n, the formula is obtained as $i=\frac{n_1}{n_2}$

5) Determine the model of the reducer

After determining the torque T for calculation and the transmission ratio i, these two parameters can be used to select from the rated parameter table in the reducer sample directory

Select the model of the reducer whose transmission ratio i and rated torque T are closest to the calculated values. However, the rated torque T of the selected reducer must be greater than the calculated torque TCZ. That is, T ⩾ t2

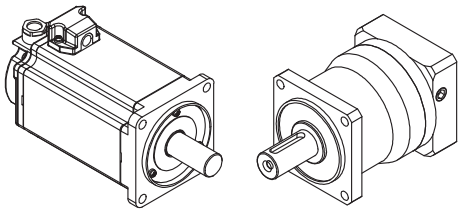
6) Check the interface of the reducer

After the model of the speed reducer is selected, it is also necessary to check whether the connection dimensions of its input, output and installation parts meet the actual requirements. If the interface of the reducer in the sample is not applicable to the interface of the IEC motor to be installed, please provide us with the model and manufacturer name of the motor and let our technicians handle it on your behalf.

Installation Instructions

一

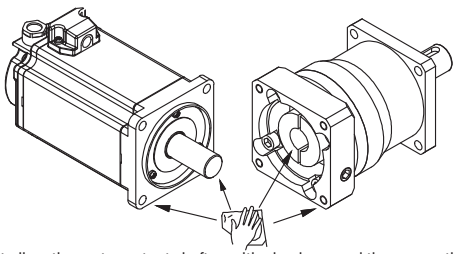
Confirm whether the motor and the reducer are in good condition. (If there is a motor shaft key, it needs to be removed.



Before installation, confirm whether the motor and the reducer are intact and undamaged, and strictly check whether the dimensions of the connection parts between the motor and the reducer match, mainly referring to the dimensions of the motor's protrusion and the reducer's concave part, as well as their fit tolerances.

二

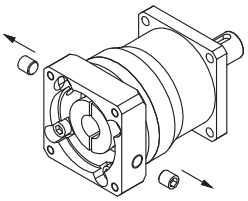
Clean and dry the connection part between the motor shaft and the reducer



The anti-rust oil on the motor output shaft, positioning boss and the connection part of the reducer should be wiped clean with gasoline or zinc sodium water. The purpose is to ensure the tightness of the connection and the flexibility of operation, and to prevent unnecessary wear.

三

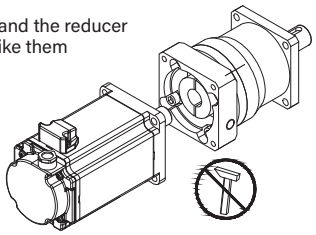
Unscrew the screws on the outside of the reducer flange and insert an Allen wrench



Remove the dust cover on the process hole on the outside of the reducer flange, adjust the elastic clamping device of the reducer input shaft to align its fastening bolts with the process hole, and insert an Allen wrench. This step is suitable for the connection of the clamp-on locking mechanism.

四

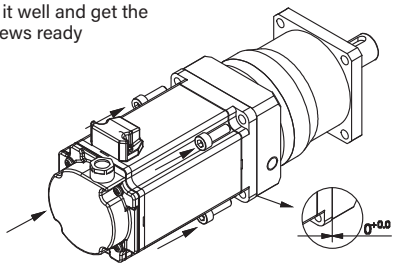
Connect the motor and the reducer naturally. Do not strike them



When connecting, it is necessary to ensure that the output shaft of the reducer and the input shaft of the motor are coaxially consistent, and that the outer flanges of both are parallel. If the coaxiality is not consistent, it will cause the motor shaft to break or the gears of the reducer to wear. In addition, during installation, it is strictly forbidden to strike with an iron hammer or other tools to prevent excessive axial or radial force from damaging the bearings or gears.

五

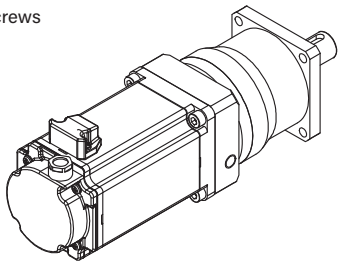
Try to connect it well and get the installation screws ready



Before connecting the motor to the reducer, please align the locking screw of the reducer with the process hole first to facilitate the insertion of the wrench.

六

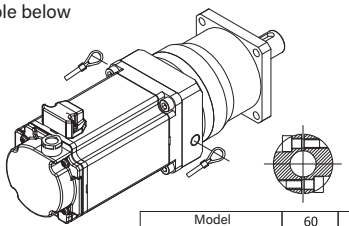
Lock the fixing screws



To ensure uniform force distribution, please first screw on the installation screws at any diagonal position, but do not tighten them. Then screw on the installation screws at the other two diagonal positions, and finally tighten all four installation screws one by one.

七

The upper limit value of torque for locking the clamping screw is shown in the table below

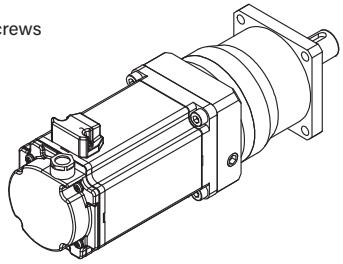


Model	60	85	115	140
Screw specification	M5	M6	M8	M10
Locking torque (N.m)	9.5	16.5	40	80

There are two clamping screws for the reducer. Please gradually apply force and lock them evenly.

八

Install process screws



The installation of process screws can better achieve the protection level.

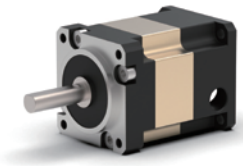
Bolt tightening torque data sheet

Screw size	Hexagonal head size	Strength 10.9 and screw locking torque		Strength 12.9 and screw locking torque	
	(mm)	(Nm)	(In- Ibs)	(Nm)	(In- Ibs)
M3* 0 .5P	2.5	1 . 8	1 6	2 . 1	1 9
M4* 0 .7P	3.0	4 . 1	37	4 . 9	44
M 5* 0 . 8P	4 . 0	8.2	73	9.8	87
M 6* 1 P	5 . 0	14	1 24	1 7	1 51
M 8* 1 . 25P	6 . 0	34	302	4 1	364
M 10* 1 .5P	8.0	67	594	80	709
M 12* 1 . 75P	1 0 . 0	1 16	1 028	1 39	1 232
M 1 4* 2P	1 2 . 0	1 86	1 648	223	1976
M 1 6* 2P	1 4 . 0	286	2534	343	3038

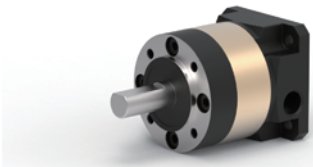
Catalogue of Spur Planetary Reducers

NR28Y Circular flange planetary reducer

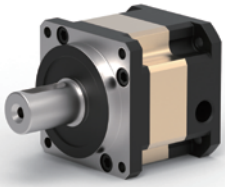
NR28F Falkland planetary reducer



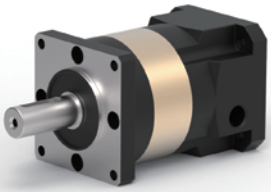
NR35Y Circular flange planetary reducer



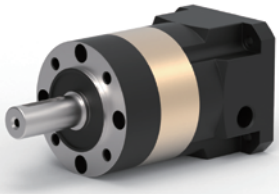
NR42FD Falkland planetary reducer



NR42F Falkland planetary reducer

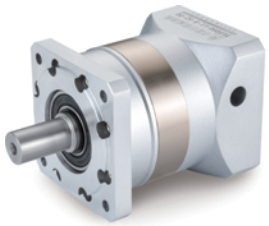


NR42Y Circular flange planetary reducer



NPLE Coaxial circular flange planetary reducer

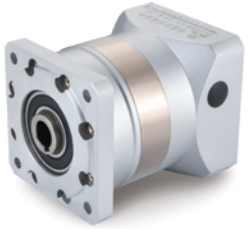
NPLF Coaxial method LAN planetary reducer



NZPLE Right-Angle Circular Flange Planetary Reducer

NZPLE Right-Angle Method Valve-Type Planetary Reducer

NPLFK Coaxial Lan Hole Output Planetary Reduce



NZPLFK Right-Angle Square-Flange Output Planetary Gear Reducer

Selection table for straight gear reducers

Standard straight gear planetary reducer

Model	Product form	Series	Reduction ratio	Adapted motor
NR28Y	Round Flange	Single-stage	4/5/7/10	STM28 series Stepper motor
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200	
NR28F	Square Flange	Single-stage	4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/112/125/140/160/175/200/250/280/350/400/500/700	
NR35Y	Round Flange	Single-stage	3/4/5/7/10	STM35 series Stepper motor
		Two-stage	12/15/16/20/25/28/30/35/40/50/70	
		Three-stage	60/64/75/80/100/112/125/140/160/175/200/250/280/350/400/500/700	
NR42FD	Square Flange	Single-stage	3/4/5/7/10	STM42 sries Stepper motor
		Two-stage	12/15/16/20/25/28/35/40/50/70	
NR42F	Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	60/64/75/80/100/112/125/140/160/175/200/250/280/350/400/500/700	
NR42Y	Round Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
NPLE057	Round Flange	Single-stage	3/4/5/7/10	STM57 sries Stepper motor
		Two-stage	16/20/25/28/35/40/50/70	
NPLF057	Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
NZPLF057	Right-Angle Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/32/35/40/50/64/70	
NZPLE057	Right-Angle Round Flange	Single-stage	3/4/5/7/10	
		Two-stage	-	
NPLFK057	Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NZPLFK057	Right-Angle Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NPLE086	Round Flange	Single-stage	3/4/5/7/10	STM86sries Stepper motor
		Two-stage	12/15/16/20/25/28/35/40/50/70	
NPLF086	Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
NZPLF086	Right-Angle Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/32/35/40/50/64/70	
NZPLE086	Right-Angle Round Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/32/35/40/50/70	
NPLFK086	Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/64/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NZPLFK086	Right-Angle Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	

Model	Product form	Series	Reduction ratio	Adapted motor
NPLE040	Round Flange	Single-stage	3/4/5/8	PMM40 series Servo motor
		Two-stage	16/20/25/32/40/64	
		Three-stage	64/80/100/120/160/200/256/320/512	
NPLF040	Square Flange	Single-stage	3/4/5/8	
		Two-stage	16/20/25/32/40/64	
		Three-stage	64/80/100/120/160/200/256/320/512	
NZPLF040	Right-Angle Square Flange	Single-stage	3/4/5/9/10	
		Two-stage	16/20/25/28/35/40/50/70/100	
		-	-	
NPLE060	Round Flange	Single-stage	3/4/5/7/10	PMM/PSM60 series Servo motor
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NPLF060	Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NZPLE060	Right-Angle Round Flange	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NZPLF060	Right-Angle Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NPLFK060	Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NZPLFK060	Right-Angle Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/175/200/250/280/350	
NPLE080	Round Flange	Single-stage	3/4/5/7/10	PMM/PSM80series Servo motor
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NPLF080	Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NZPLE080	Right-Angle Round Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NZPLF080	Right-Angle Square Flange	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NPLFK080	Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	
NZPLFK080	Right-Angle Square Flange Output	Single-stage	3/4/5/7/10	
		Two-stage	12/15/16/20/25/28/35/40/50/70	
		Three-stage	64/80/100/125/140/160/175/200/250/280/350	

NR series step reducer model name description

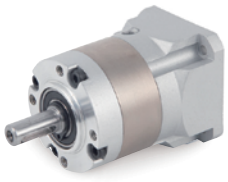
Example: NR 28 Y - L1 - (A) - S1 - P2 - D

- NR: NR series reducers
- Motor base: 28、35、42
- Y: Coaxial circular flange, F: Coaxial flange
- L1: Level 1, L2: Level 2, L3: Level 3
- (A) : Reduction ratio (see inside pages and drawings for details)
- S1: Solid shaft, S2(standard product, with keyway)
- P2:Normal backlash
- Internal definitions: D, H

NR28Y Stepper Coaxial Round-Flange Planetary Gearbox

Naming rule

NR28Y - L1 - (A) - S1 - P2 - H

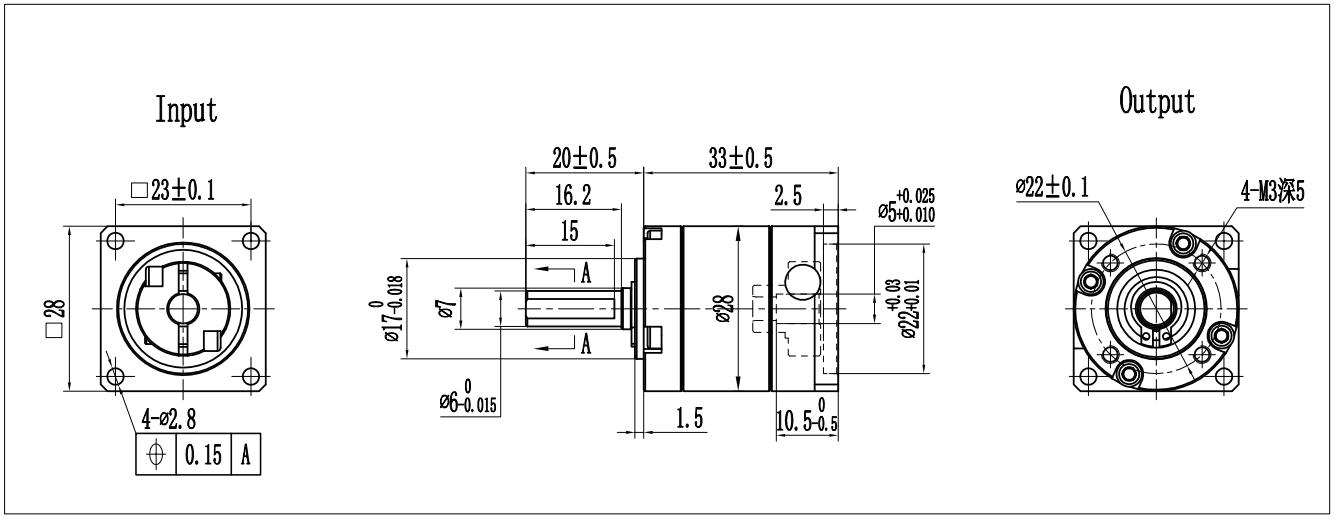


Performance parameters of the reducer

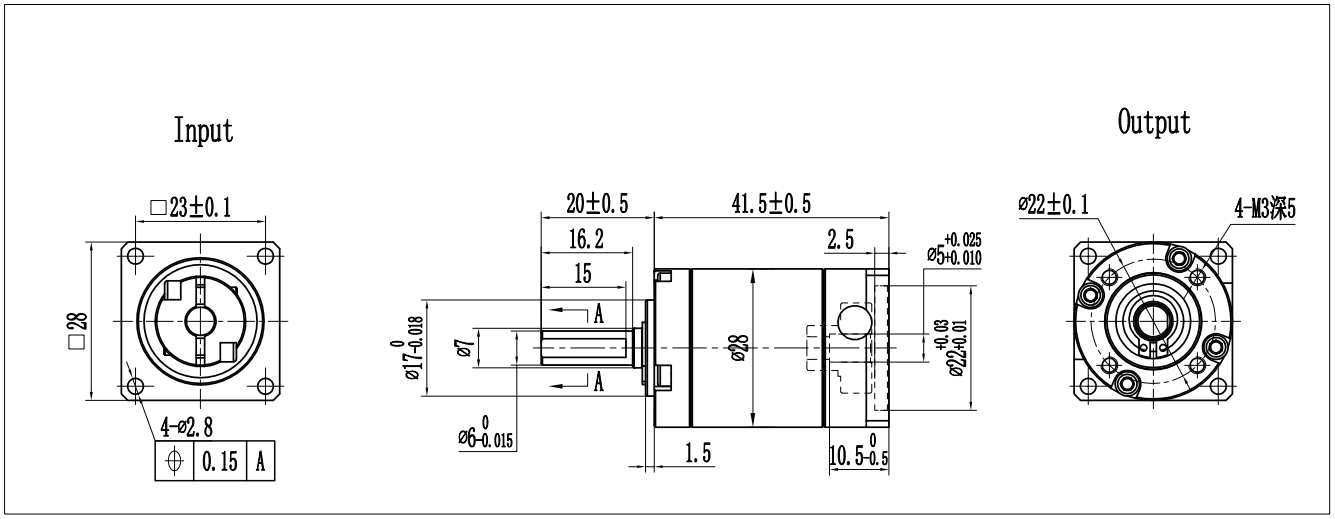
Model	Unit	NR28Y	Ratio	Stage
Rated output torque	N•M	2.0	4	1
		2.0	5	
		2.0	7	
		1.0	10	
		4.0	16	2
		4.0	20	
		4.0	25	
		4.0	28	
		4.0	35	
		3.0	40	
		3.0	50	
		3.0	70	
		6.0	64	3
		6.0	80	
		6.0	100	
		6.0	125	
		6.0	140	
		6.0	175	
		6.0	200	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	1000		
Maximum input speed	rmp	2000		
Maximum radial force	N	300		
Maximum axial force	N	100		
Efficiency	%	90%		
Average lifetime	h	20000		
Weight	kg	-		1
		-		2
		-		3
Noise	dB	60	60	
Lubricating	h	Synthetic grease lubrication		

Note: "-" indicates that the reduction ratio has no parameters.

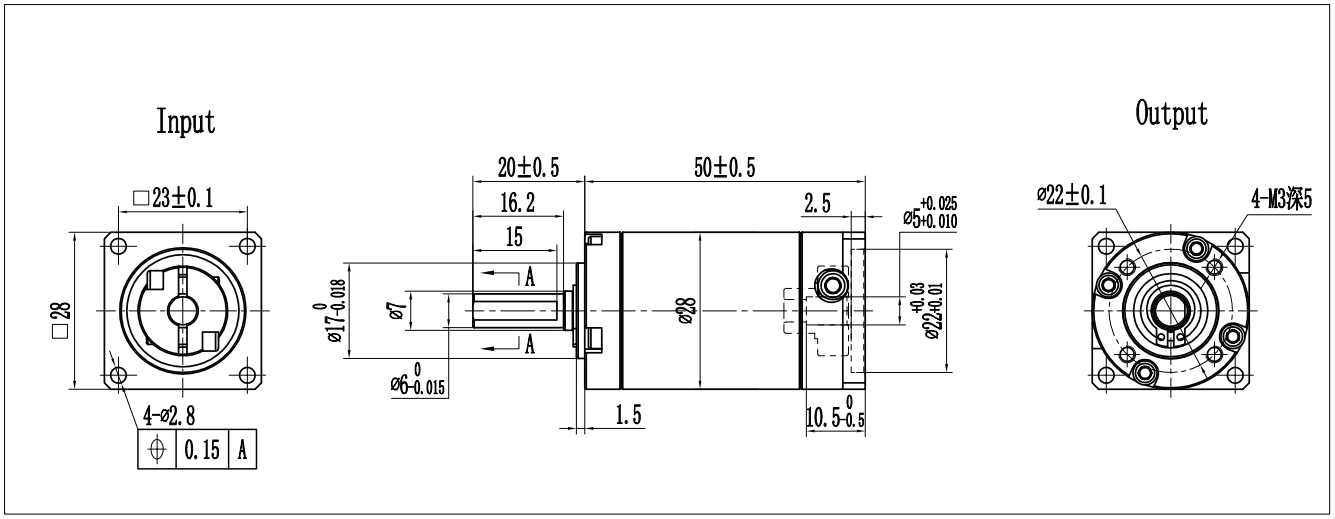
NR28Y-L1 External dimensions



NR28Y-L2 External dimensions



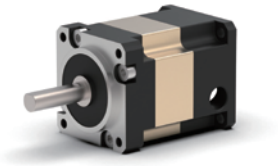
NR28Y-L3 External dimensions



NR28F Stepper coaxial method flange planetary reducer

Naming rule

NR28F - L1 - (A) - S2 - P2 - D

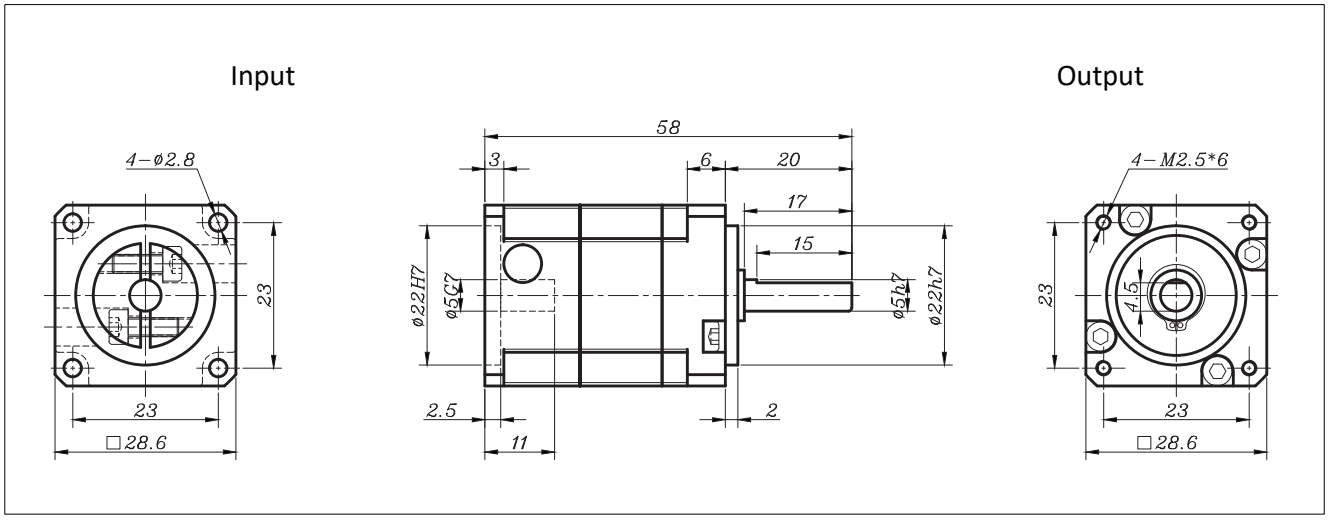


Performance parameters of the reducer

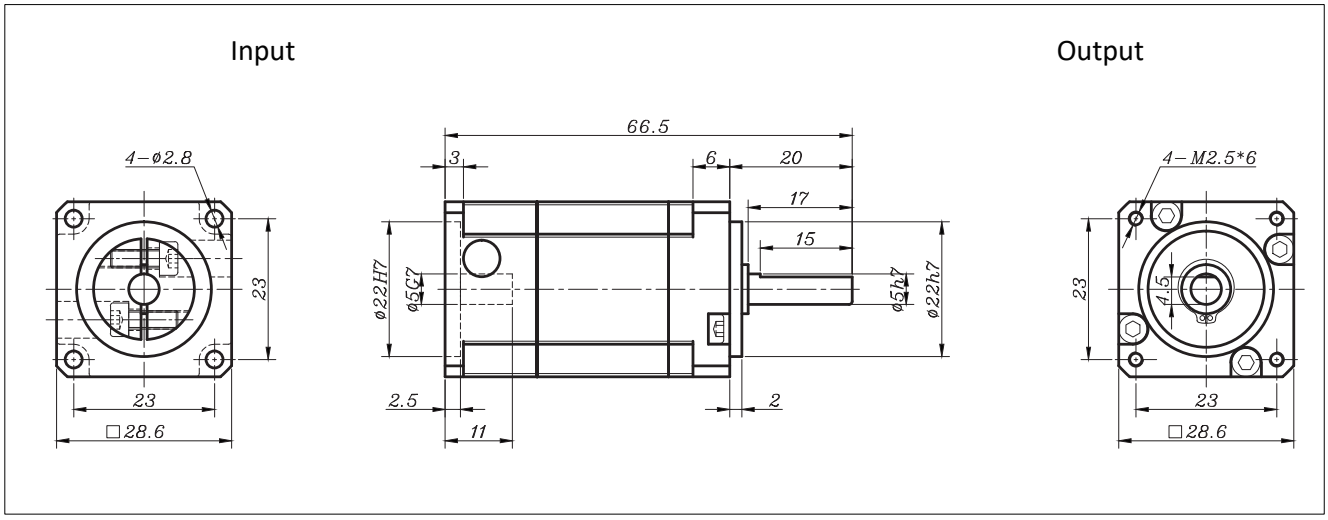
Model	Unit	NR28F	Ratio	Stage
Rated output torque	N·M	9.0	4	1
		8.5	5	
		5.0	7	
		3.0	10	
		9.0	16	2
		9.0	20	
		8.5	25	
		9.0	28	
		8.5	35	
		9.0	40	
		8.5	50	
		5.0	70	
		9.0	64	3
		9.0	80	
		9.0	100	
		9.0	112	
		8.5	125	
		9.0	140	
		9.0	160	
		8.5	175	
		9.0	200	
		8.5	250	
		9.0	280	
		8.5	350	
		9.0	400	
		8.5	500	
		5.0	700	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	3000		
Maximum input speed	rmp	6000		
Maximum radial force	N	150		
Maximum axial force	N	80		
Efficiency	%	96%		
Average lifetime	h	20000		

Model	Unit	NR28F	Ratio	Stage
Moment of inertia	$kgcm^2$	0.018	4	1
		0.014	5	
		0.012	7	
		0.010	10	
		0.018	16	2
		0.014	20	
		0.014	25	
		0.012	28	
		0.012	35	
		0.010	40	
		0.010	50	
		0.010	70	
		0.018	64	3
		0.014	80	
		0.014	100	
		0.014	112	
		0.014	125	
		0.014	140	
		0.012	160	
		0.014	175	
		0.010	200	
		0.010	250	
		0.010	280	
		0.010	350	
		0.010	400	
		0.010	500	
		0.010	700	
Weight	kg	**0.16**		1
		0.25		2
		0.34		3
Noise	dB	60		
Lubricating		Synthetic grease lubrication		
levels of protection		IP54		

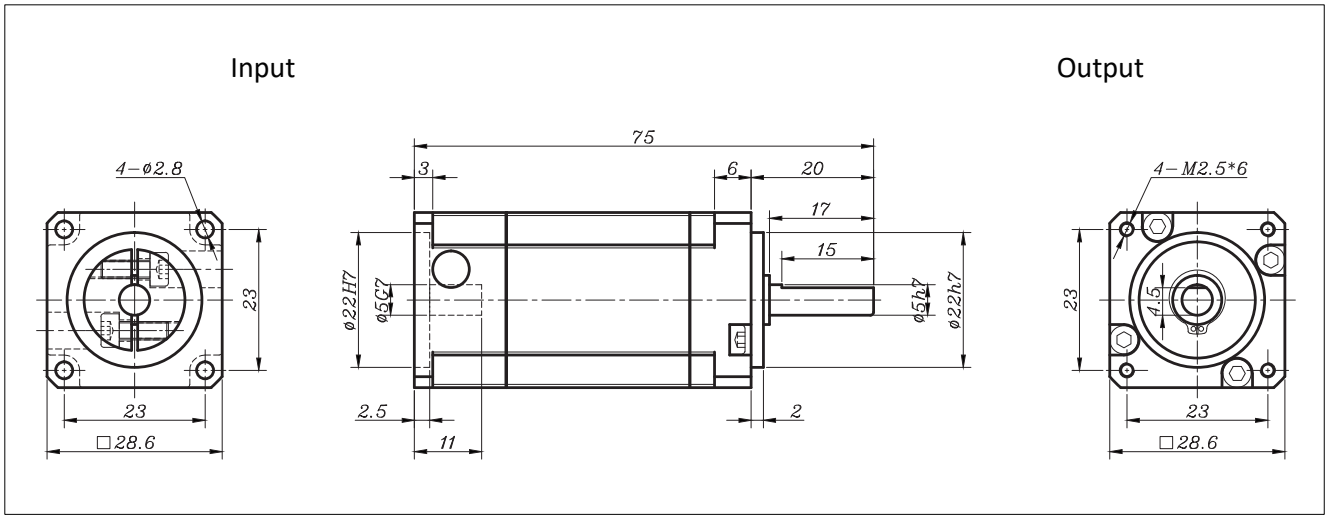
NR28F-L1 External dimensions



NR28F-L2 External dimensions



NR28F-L3 External dimensions



NR35Y Stepping Coaxial Round Flange Planetary Gearbox

Naming rule

NR35Y - L1 - (A) - S2 - P2 - D

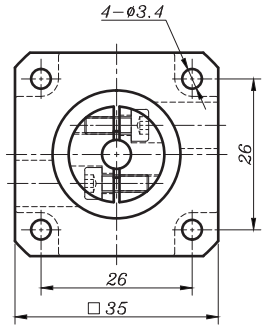
Performance parameters of the reducer

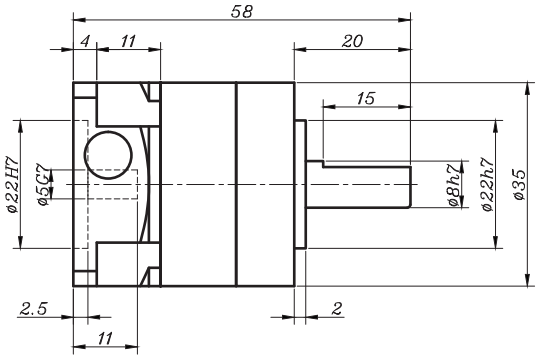
Model	Unit	NR35Y	Ratio	Stage
Rated output torque	N•M	3.0	3 (Secondary option)	1
		9.0	4	
		8.5	5	
		5.0	7	
		3.0	10	
		5.0	12 (Secondary option)	2
		5.0	15 (Secondary option)	
		9.0	16	
		9.0	20	
		8.5	25	
		9.0	28	
		5.0	30 (Secondary option)	
		8.5	35	
		9.0	40	
		8.5	50	
		5.0	70	
		8.5	60 (Secondary option)	3
		9.0	64	
		9.0	75 (Secondary option)	
		8.5	80	
		9.0	100	
		8.5	112	
		9.0	125	
		8.5	140	
		9.0	160	
		8.5	175	
		5.0	200	
		8.5	250	
		9.0	280	
		8.5	350	
		9.0	400	
		8.5	500	
		5.0	700	

Model	Unit	NR35Y	Ratio	Stage
Moment of inertia	kgcm^2	0.022	3 (Secondary option)	1
		0.018	4	
		0.014	5	
		0.012	7	
		0.010	10	
		0.018	12 (Secondary option)	2
		0.014	15 (Secondary option)	
		0.018	16	
		0.014	20	
		0.014	25	
		0.012	28	
		0.010	30 (Secondary option)	
		0.012	35	
		0.010	40	
		0.010	50	
		0.010	70	
		0.014	60 (Secondary option)	3
		0.018	64	
		0.014	75 (Secondary option)	
		0.014	80	
		0.014	100	
		0.014	112	
		0.014	125	
		0.014	140	
		0.012	160	
		0.014	175	
		0.010	200	
		0.010	250	
		0.010	280	
		0.010	350	
		0.010	400	
		0.010	500	
		0.010	700	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	3000		
Maximum input speed	rmp	6000		
Maximum radial force	N	150		
Maximum axial force	N	80		
Efficiency	%	96%		
Average lifetime	h	20000		
Weight	kg	0.20		1
		0.30		2
		0.40		3
Noise	dB	60		
Lubricating		Synthetic grease lubrication		
Levels of protection		IP54		

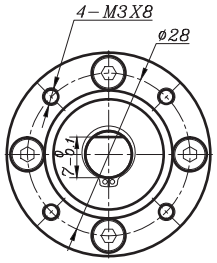
NR35Y-L1 Secondary option

Input



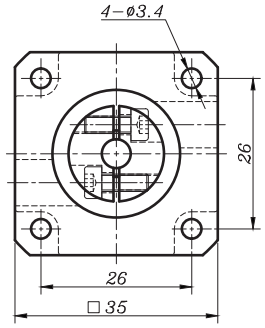


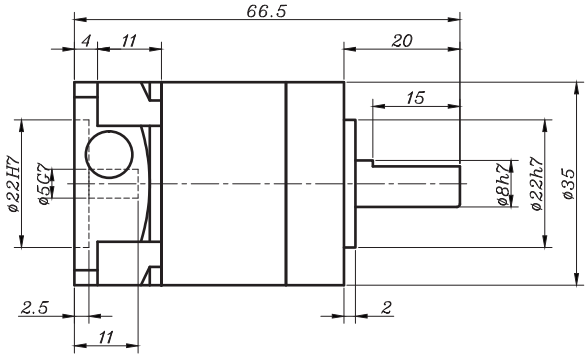
Output



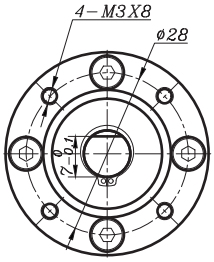
NR35Y-L2 Secondary option

Input



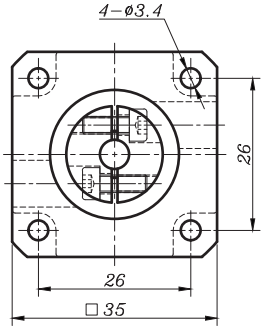


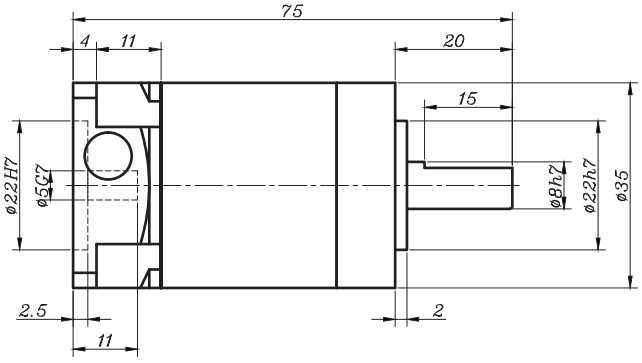
Output



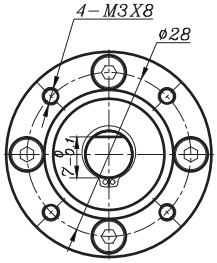
NR35Y-L3 Secondary option

Input





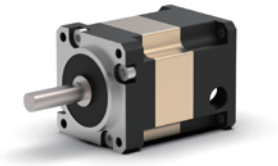
Output



NR42FD stepper coaxial method flange planetary reducer

Naming rule

NR42FD - L1 - (A) - S2 - P2 - D



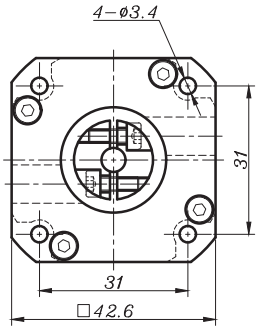
Performance parameters of the reducer

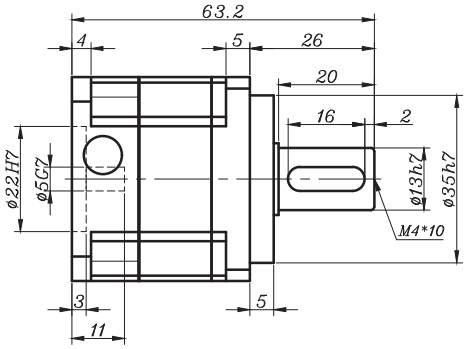
Model	Unit	NR42FD	Ratio	Stage
Rated output torque	N•M	4.5	3 (Secondary option)	1
		15	4	
		14	5	
		8	7	
		5	10	2
		18	12 (Secondary option)	
		18	15 (Secondary option)	
		20	16	
		20	20	
		18	25	
		20	28	
		18	35	
		20	40	
		18	50	
		10	70	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	3000		
Maximum input speed	rmp	6000		
Maximum radial force	N	280		
Maximum axial force	N	200		
Efficiency	%	94%		
Average lifetime	h	20000		

Model	Unit	NR42FD	Ratio	Stage
Moment of inertia	$kgcm^2$	0.031	3 (Secondary option)	1
		0.022	4	
		0.019	5	
		0.017	7	
		0.015	10	2
		0.029	12 (Secondary option)	
		0.023	15 (Secondary option)	
		0.022	16	
		0.019	20	
		0.019	25	
		0.017	28	
		0.017	35	
		0.015	40	
		0.015	50	
		0.015	70	
Weight	kg	0.5		1
		0.6		2
Noise	dB	60		
Lubricating		Synthetic grease lubrication		
levels of protection		IP54		

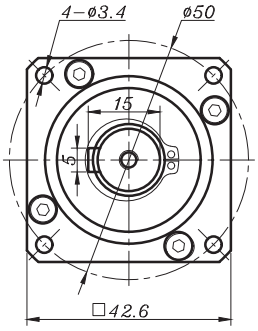
NR42FD-L1 External dimensions

Input



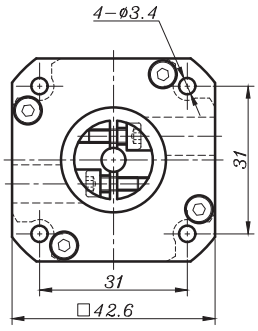


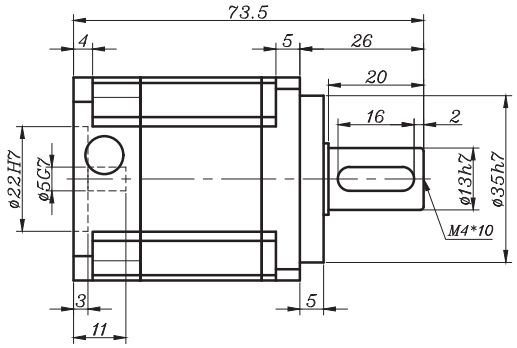
Output



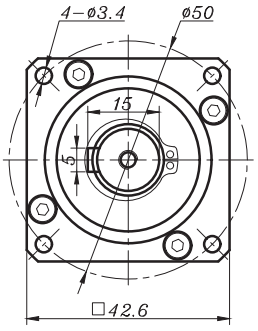
NR42FD-L2 External dimensions

Input





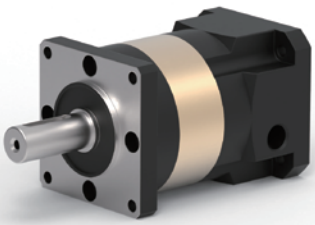
Output



NR42F Stepper coaxial method flange planetary reducer

Naming rule

NR42F - L1 - (A) - S2 - P2 - D



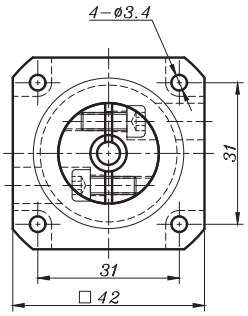
Performance parameters of the reducer

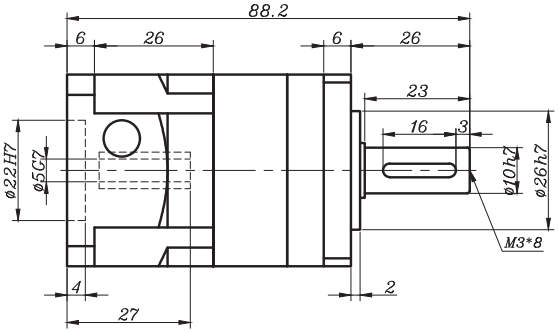
Model	Unit	NR42F	Ratio	Stage
Rated output torque	N•M	4.5	3 (Secondary option)	1
		15	4	
		14	5	
		8	7	
		5	10	
		18	12 (Secondary option)	2
		18	15 (Secondary option)	
		20	16	
		20	20	
		18	25	
		20	28	
		18	35	
		20	40	
		18	50	
		10	70	
		18	60 (Secondary option)	
		20	64	3
		18	75 (Secondary option)	
		20	80	
		20	100	
		20	112	
		18	125	
		20	140	
		20	160	
		18	175	
		20	200	
		18	250	
		20	280	
		18	350	
		20	400	
		18	500	
		10	700	

Model	Unit	NR42F	Ratio	Stage
Moment of inertia	$kgcm^2$	0.031	3 (Secondary option)	1
		0.022	4	
		0.019	5	
		0.017	7	
		0.015	10	
		0.029	12 (Secondary option)	2
		0.023	15 (Secondary option)	
		0.022	16	
		0.019	20	
		0.019	25	
		0.017	28	
		0.017	35	
		0.015	40	
		0.015	50	
		0.015	70	
		0.029	60 (Secondary option)	
		0.022	64	3
		0.023	75 (Secondary option)	
		0.019	80	
		0.019	100	
		0.017	112	
		0.019	125	
		0.017	140	
		0.015	160	
		0.017	175	
		0.015	200	
		0.015	250	
		0.015	280	
		0.015	350	
		0.015	400	
		0.015	500	
		0.015	700	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	3000		
Maximum input speed	rmp	6000		
Maximum radial force	N	200		
Maximum axial force	N	160		
Efficiency	%	96%		
Average lifetime	h	20000		
Weight	kg	0.4		1
		0.5		2
		0.6		3
Noise	dB	58		
Lubricating		Synthetic grease lubrication		
Levels of protection		IP54		

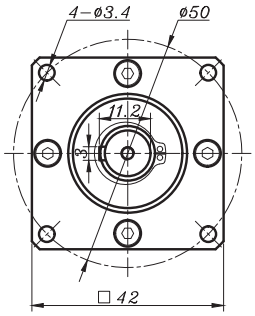
NR42F-L1 Secondary option

Input



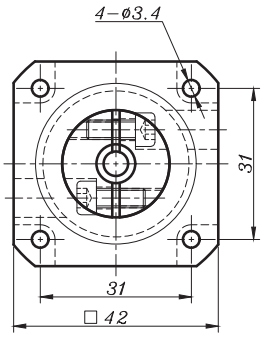


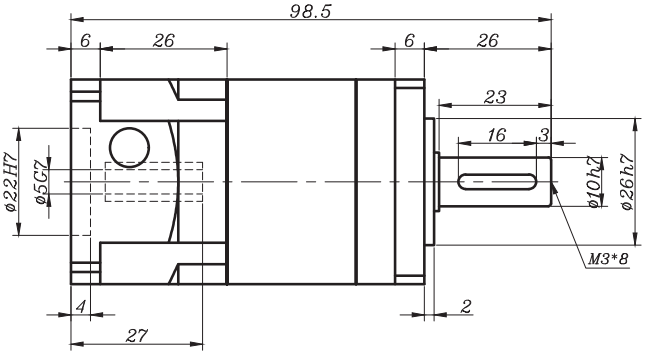
Output



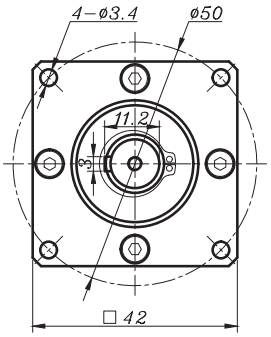
NR42F-L2 Secondary option

Input



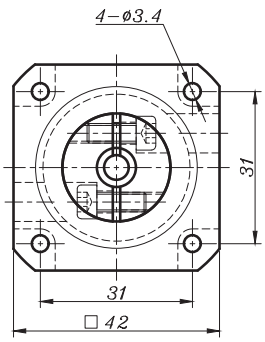


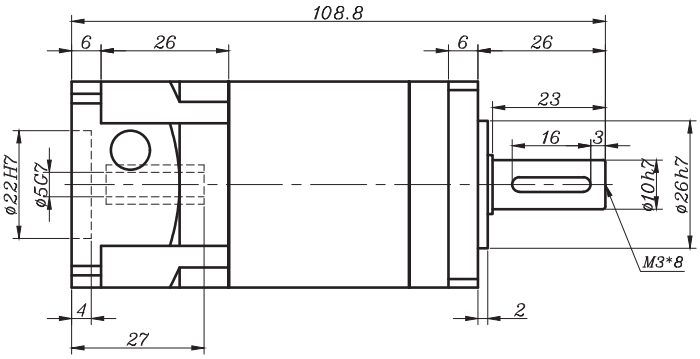
Output



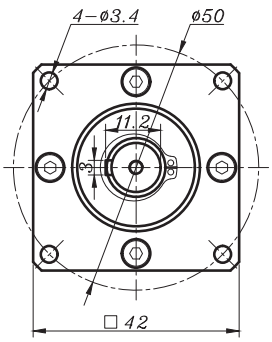
NR42F-L3 Secondary option

Input





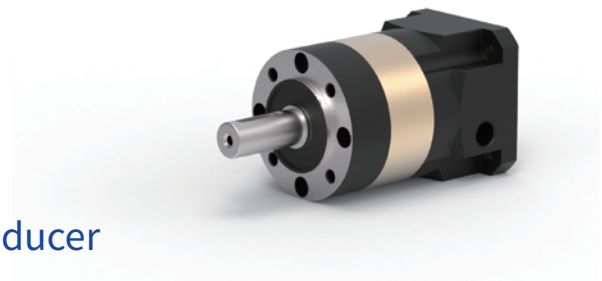
Output



NR42Y Stepping Coaxial Round Flange Planetary Gearbox

Naming rule

NR42Y - L1 - (A) - S2 - P2 - D

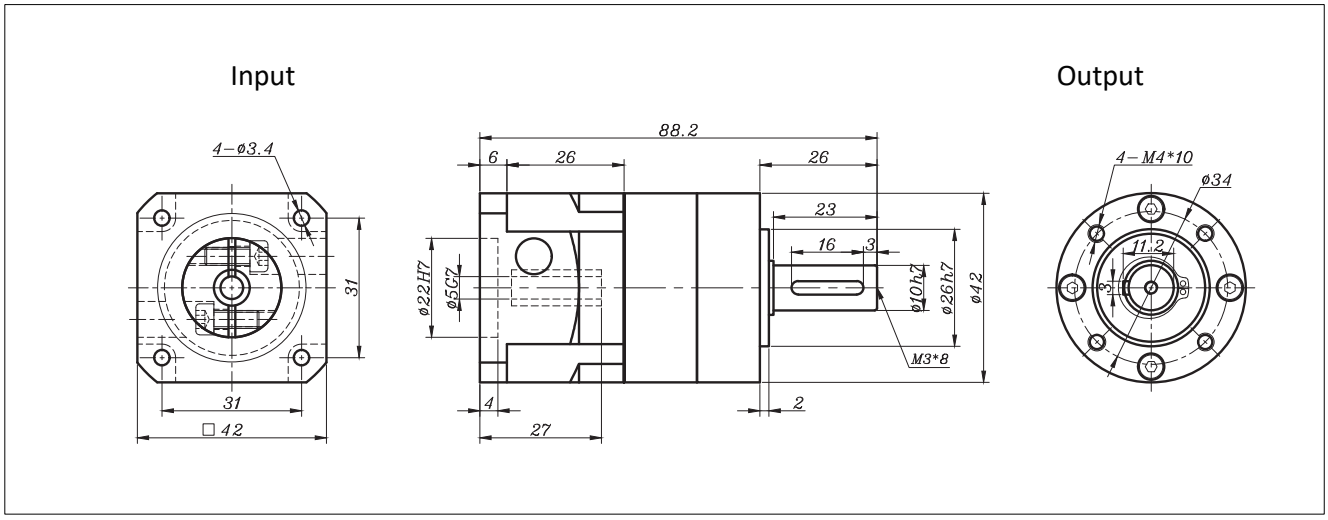


Performance parameters of the reducer

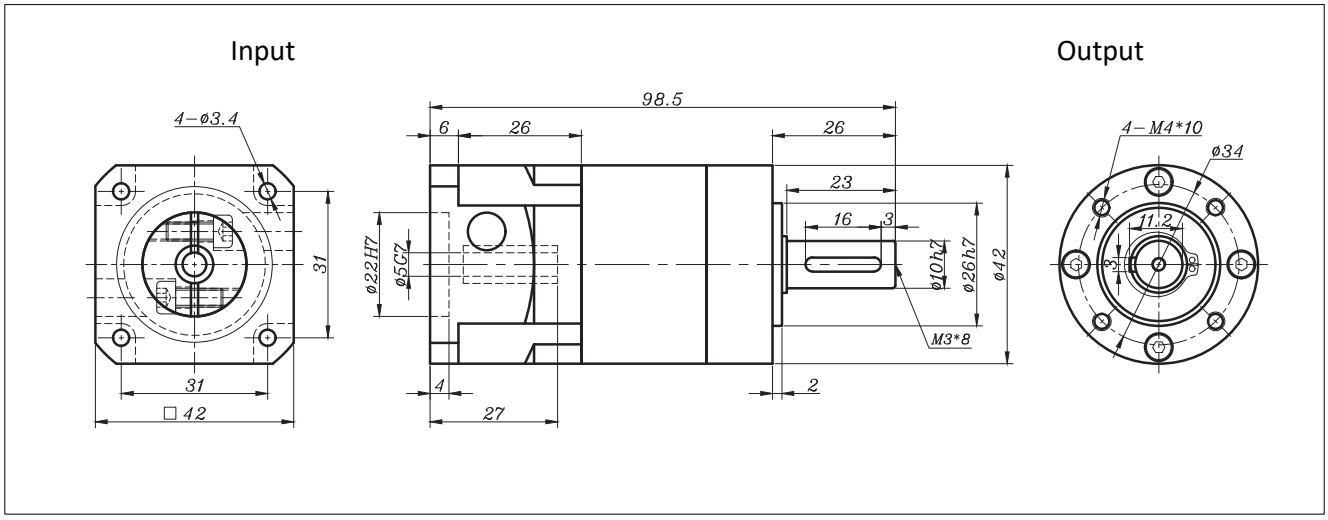
Model	Unit	NR42Y	Ratio	Stage
Rated output torque	N•M	4.5	3 (Secondary option)	1
		15	4	
		14	5	
		8	7	
		5	10	2
		18	12 (Secondary option)	
		18	15 (Secondary option)	
		20	16	
		20	20	
		18	25	
		20	28	
		18	35	
		20	40	
		18	50	
		10	70	
Emergency stop torque	N·m	2 times Rated output torque		
Norminal input speed	rmp	3000		
Maximum input speed	rmp	6000		
Maximum radial force	N	200		
Maximum axial force	N	160		
Efficiency	%	96%		
Average lifetime	h	20000		

Model	Unit	NR42Y	Ratio	Stage
Moment of inertia	$kgcm^2$	0.031	3 (Secondary option)	1
		0.022	4	
		0.019	5	
		0.017	7	
		0.015	10	2
		0.029	12 (Secondary option)	
		0.023	15 (Secondary option)	
		0.022	16	
		0.019	20	
		0.019	25	
		0.017	28	
		0.017	35	
		0.015	40	
		0.015	50	
		0.015	70	
Weight	kg	0.4		1
		0.5		2
Noise	dB	58		
Lubricating		Synthetic grease lubrication		
levels of protection		IP54		

NR42Y-L1 External dimensions



NR42Y-L2 External dimensions



NPL Series step reducer model name description

Example: NPL E XX - L1 - (3) - 20 - 002 - YT - 14

NPL: Coaxial reducer
NZPL: Right-angle reducer

E: Round flange, F: Method flange
FK: Method flange hole output

XX: Motor base specifications (57/86/40/60/80)

L1: Level 1, L2: Level 2, L3: Level 3

(3) : Reduction ratio (see inside page and drawing for details)

20: Output shaft diameter (see inside page and drawing for details)

002: Connection flange number (see inside page and drawing for details)

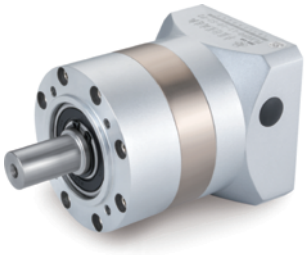
YT: Integrated flange, FT split flange (see inside page and drawings for details)

14: Motor input shaft diameter (see inside pages and drawings for details)

NPLE Stepping coaxial circular flange planetary reducer

Product name

Example：NPLE 057 - L1 - (3) - 10 - 003 - FT - 5



Performance parameters of the reducer

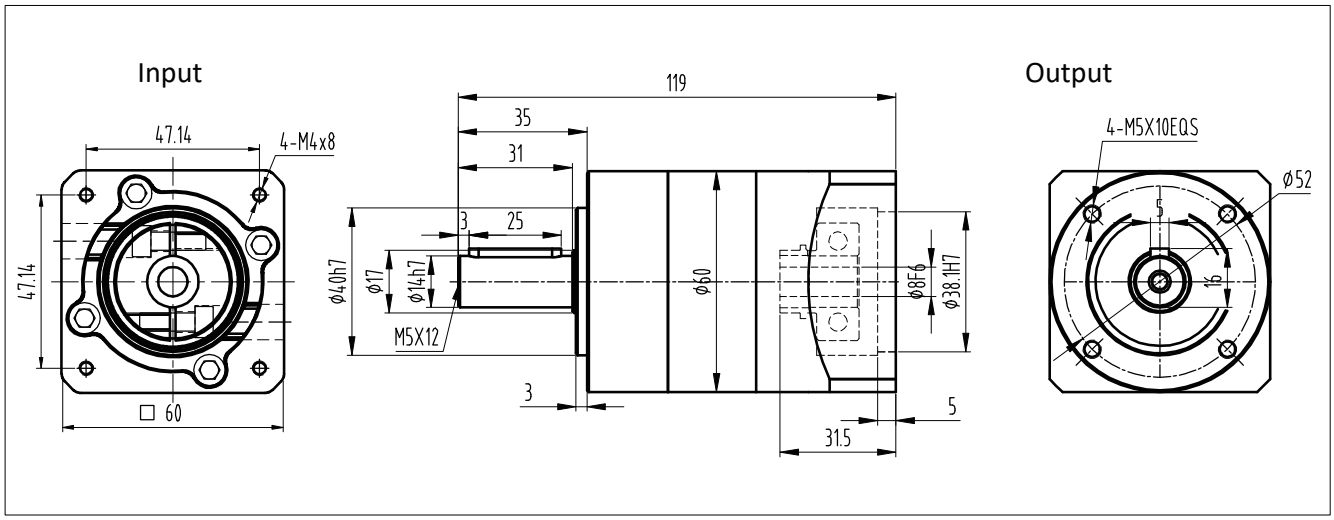
Model	Unit	NPLE057	NPLE086	Ratio	Stage
Rated output torque	N·M	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7 (8)	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28(32)	
		33	105.5	35	
		30	96	40	
		33	105.5	50(64)	
		21.5	71.5	70	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3000		
Maximum input speed	rmp	4500	6000		
Maximum radial force	N	605	1270		
Maximum axial force	N	490	1100		
Efficiency	%	＞95%			
Average lifetime	h	20000			
Weight	kg	1.0	2.8		1
		1.3	3.4		2

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

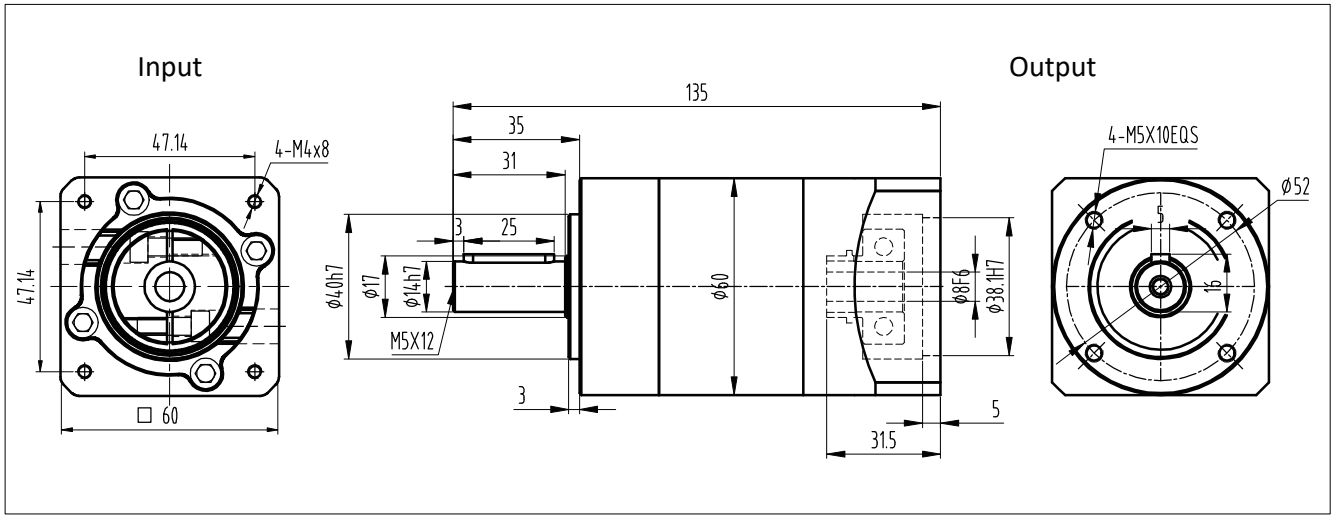
Model	Unit	NPLE042	NPLE057	NPLE086	Ratio	Stage
Moment of inertia	$kgcm^2$	0.03	0.107	0.400	3	1
		0.022	0.094	0.309	4	
		0.019	0.092	0.291	5	
		(0.017)	0.091	0.285	7 (8)	
		-	0.091	0.283	10	
		-	-	0.400	12	2
		-	-	0.400	15	
		0.022	0.094	0.309	16	
		0.019	0.092	0.291	20	
		0.019	0.092	0.291	25	
		(0.017)	0.091	0.285	28(32)	
		-	0.091	0.285	35	
		0.016	0.091	0.283	40	
		(0.016)	0.091	0.283	50(64)	
		-	0.091	0.283	70	
Noise	dB	60	60	65		
Lubricating		Synthetic grease lubrication				
levels of protection		IP54				

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

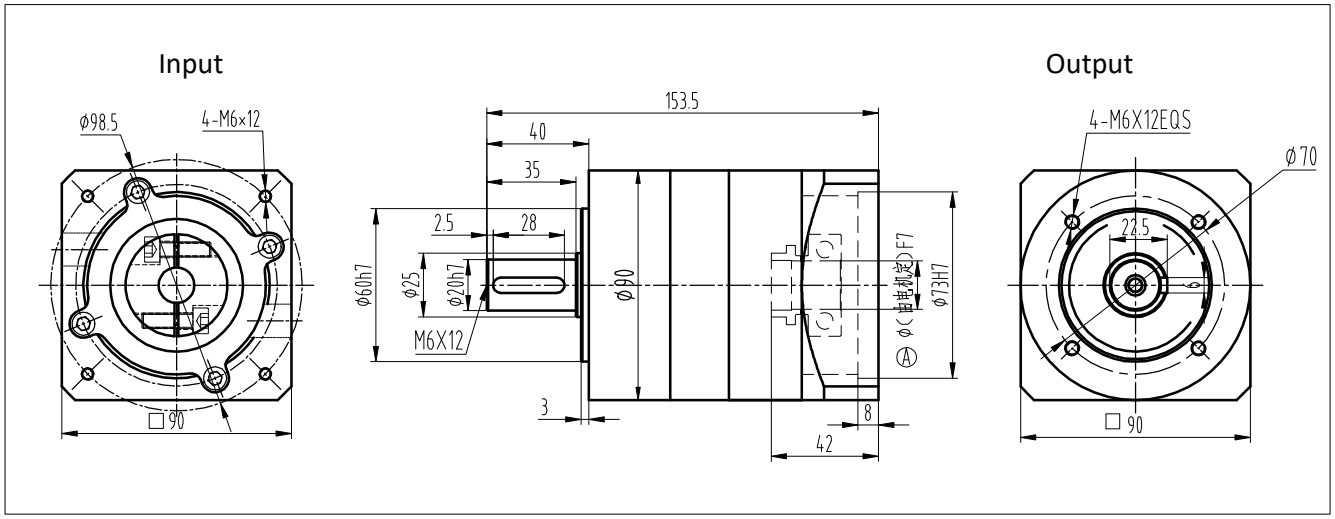
NPLE057-L1 External dimensions



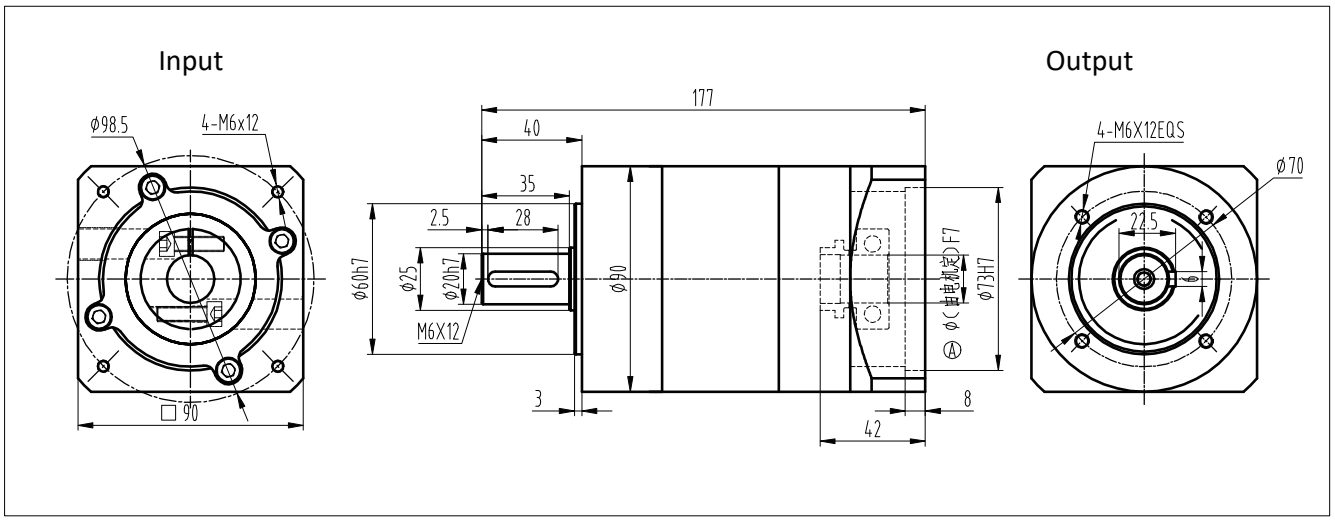
NPLE057-L2 External dimensions



NPLE086-L1 External dimensions

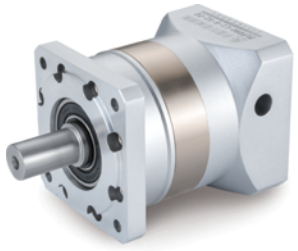


NPLE086-L2 External dimensions



NPLF Stepper Motor Coaxial Square-Flange Planetary Gearbox

Product name



Example：NPLF 057 - L1 - (3) - 10 - 003 - FT - 5

Performance parameters of the reducer

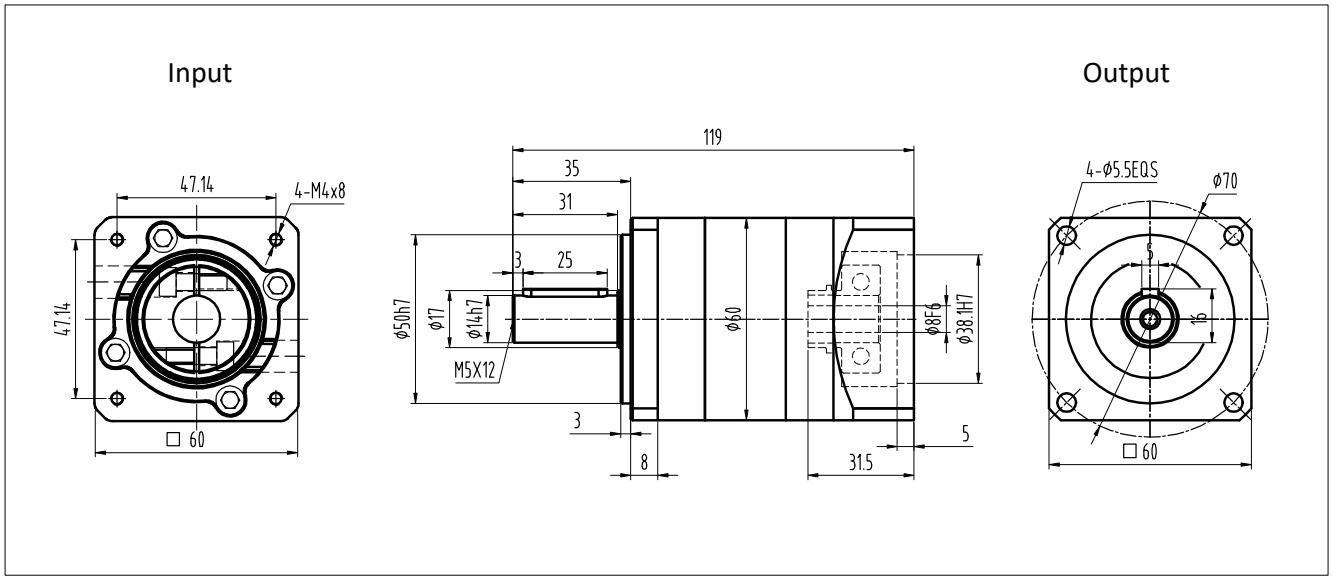
Model	Unit	NPLF057	NPLF086	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7 (8)	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28(32)	
		33	105.5	35	
		30	96	40	
		33	105.5	50(64)	
		21.5	71.5	70	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3000		
Maximum input speed	rmp	6000	6000		
Maximum radial force	N	605	1270		
Maximum axial force	N	490	1100		
Efficiency	%	＞95%			
Average lifetime	h	20000			
Weight	kg	1.0	2.8		1
		1.3	3.4		2

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

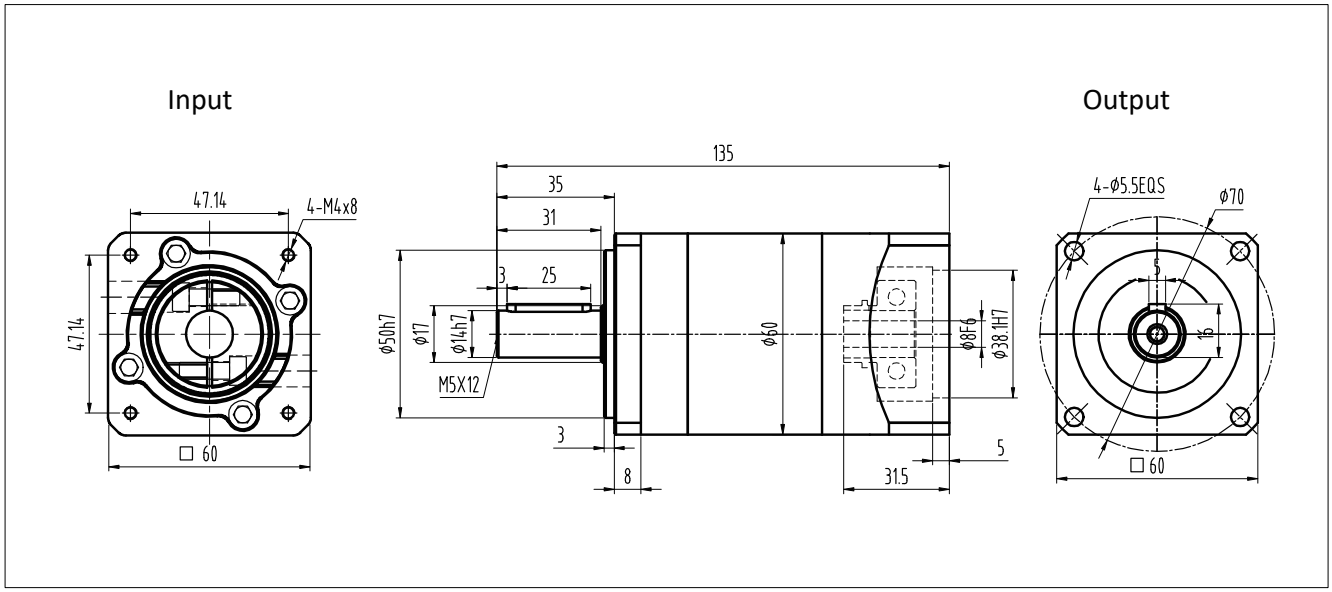
		NPLF042	NPLF057	NPLF086		
Moment of inertia	$kgcm^2$	0.03	0.107	0.400	3	1
		0.022	0.094	0.309	4	
		0.019	0.092	0.291	5	
		(0.017)	0.091	0.285	7 (8)	
		-	0.091	0.283	10	
		-	-	0.400	12	2
		-	-	0.400	15	
		0.022	0.094	0.309	16	
		0.019	0.092	0.291	20	
		0.019	0.092	0.291	25	
		(0.017)	0.091	0.285	28(32)	
		-	0.091	0.285	35	
		0.016	0.091	0.283	40	
		(0.016)	0.091	0.283	50(64)	
		-	0.091	0.283	70	
Noise	dB	60	60	65		
Lubricating		Synthetic grease lubrication				
levels of protection		IP54				

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

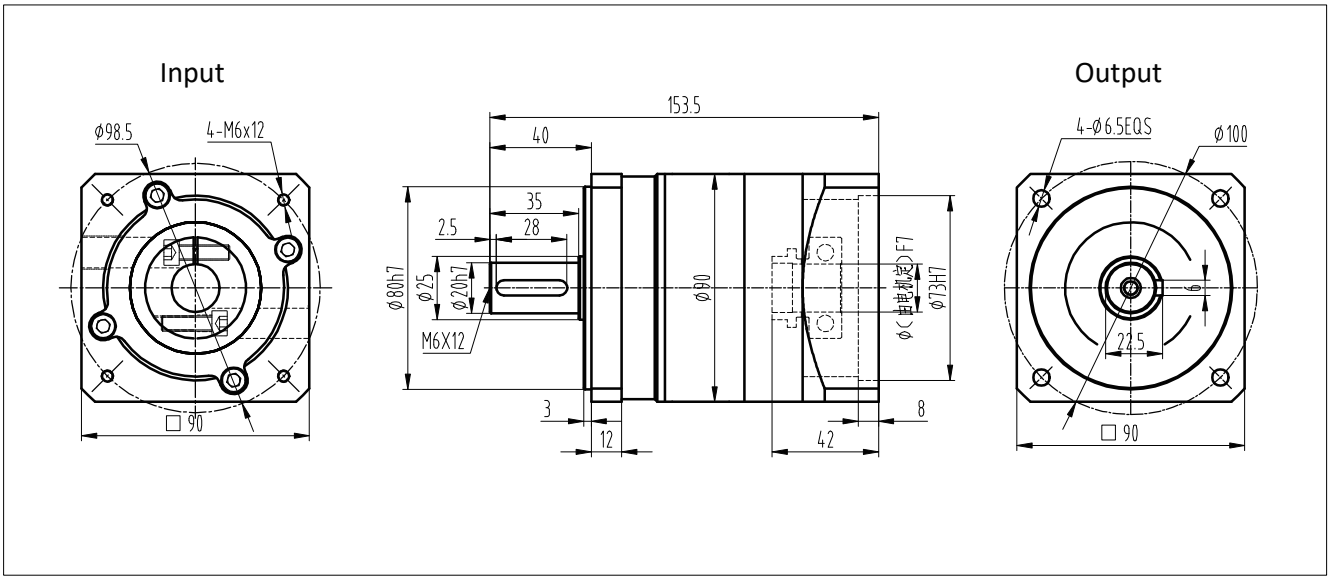
NPLF057-L1 External dimensions



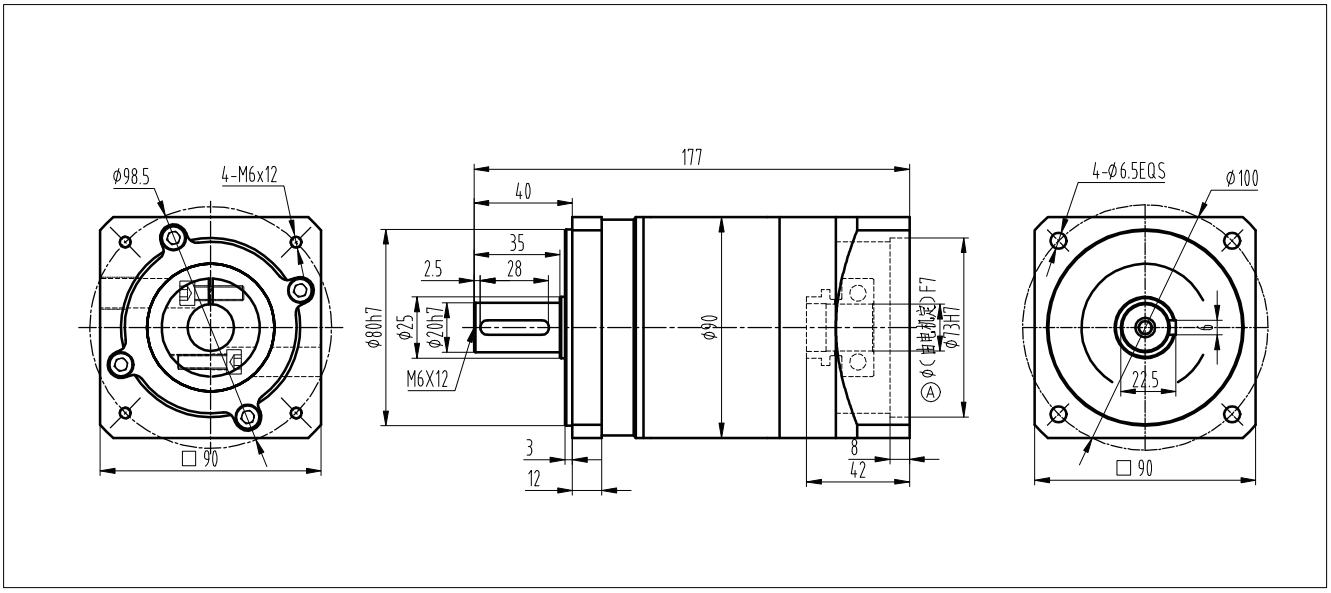
NPLF057-L2 External dimensions



NPLF086-L1 External dimensions



NPLF086-L2 External dimensions



NPLFK Step coaxial method Lanhole output planetary reducer

Product name

Example：NPLFK 057 - L1 - （3） - 10 - 003 - YT - 8

Performance parameters of the reducer

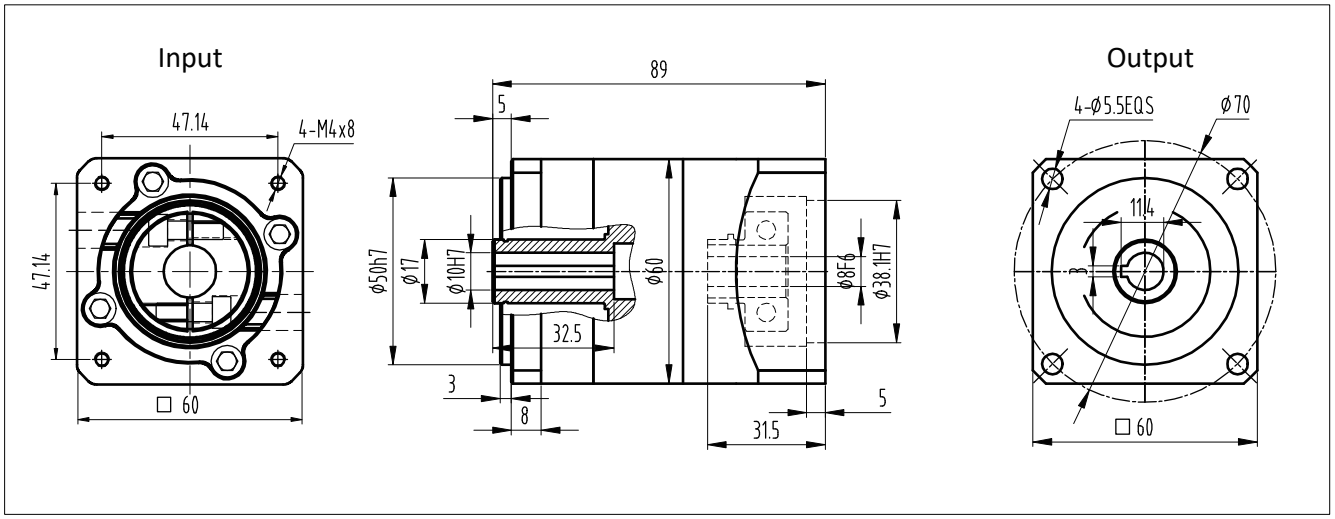
Model	Unit	NPLFK057	NPLFK086	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28	
		33	105.5	35	
		30	96	40	
		33	105.5	50	
		21.5	71.5	70	
		37.5	120	64	3
		37.5	120	80	
		37.5	120	100	
		41	132	125	
		37.5	120 (120)	140(160)	
		41	132	175	
		37.5	120	200	
		41	132	250	
		37.5	120	280	
		41	132	350	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	4000	3000		
Maximum input speed	rmp	8000	6000		
Maximum radial force	N	670	1420		
Maximum axial force	N	550	1250		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	1.0	2.8		1
		1.3	3.4		2
		1.6	4.0		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

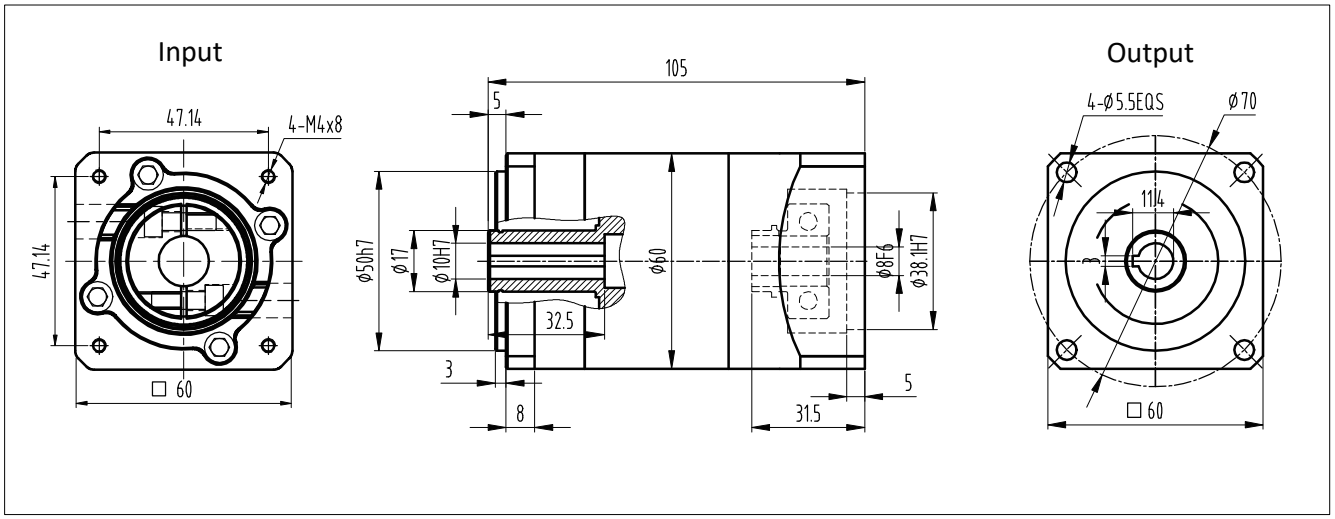
Model	Unit	NPLFK057	NPLFK086	Ratio	Stage
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50	
		0.091	0.283	70	
		0.092	0.291	64	3
		0.092	0.291	80	
		0.092	0.291	100	
		0.092	0.291	125	
		0.091	0.285 (0.285)	140(160)	
		0.091	0.285	175	
		0.091	0.283	200	
		0.091	0.283	250	
		0.091	0.283	280	
		0.091	0.283	350	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

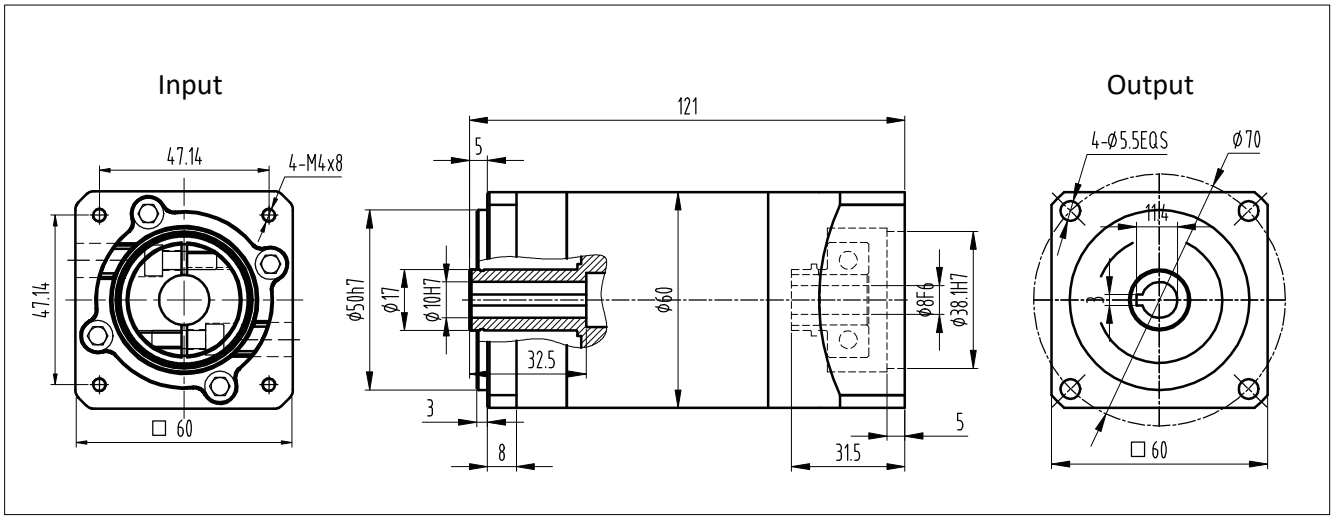
NPLFK057-L1 External dimensions



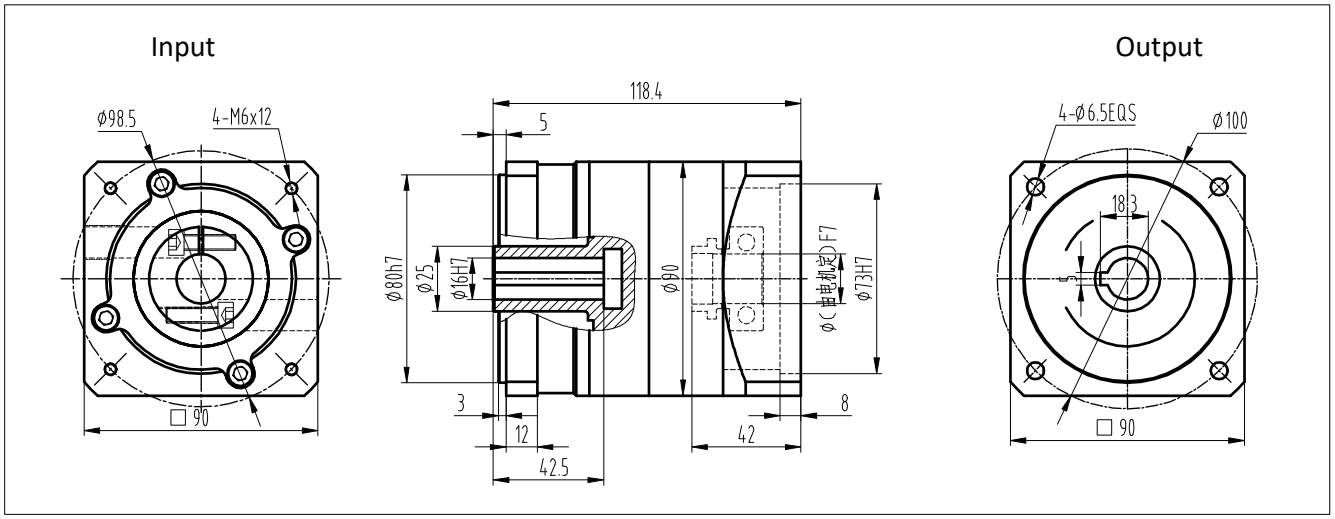
NPLFK057-L2 External dimensions



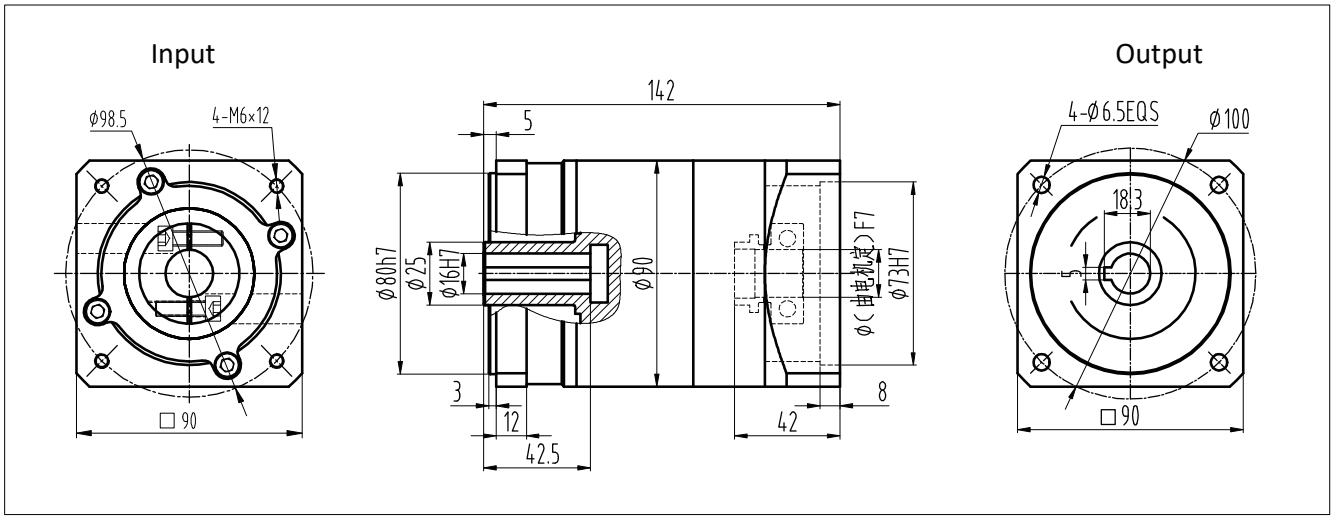
NPLFK057-L3 External dimensions



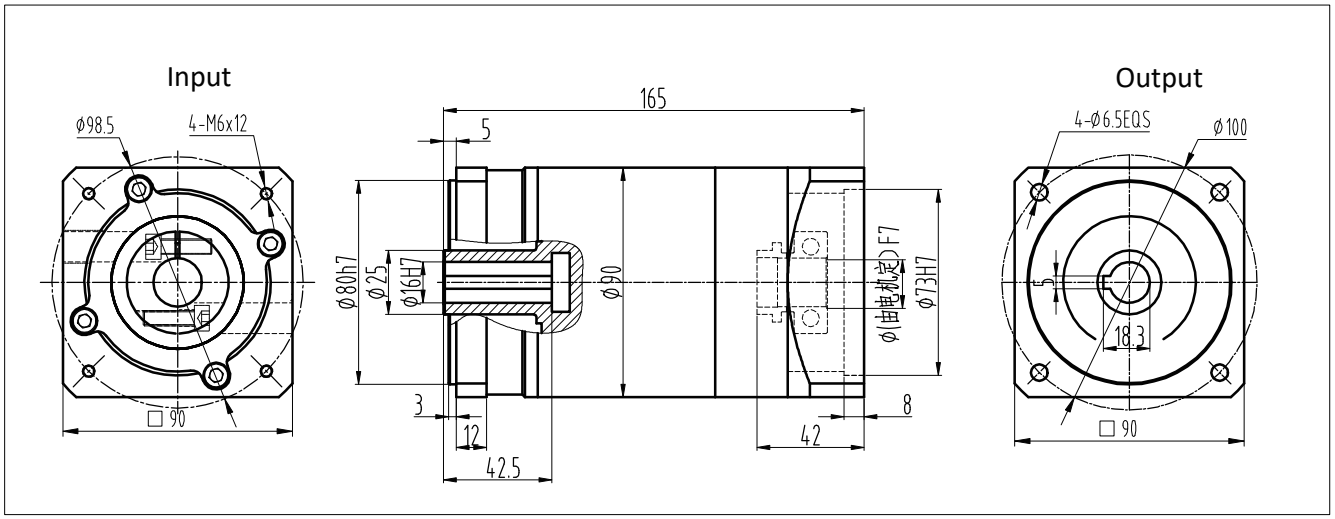
NPLFK086-L1 External dimensions



NPLFK086-L2 External dimensions



NPLFK086-L3 External dimensions



NZPLE Stepper Right-Angle Round-Flange Planetary Gearbox

Product name

Example：NZPLE 057 - L1 - (3) - 14 - 003 - YT - 8

Performance parameters of the reducer

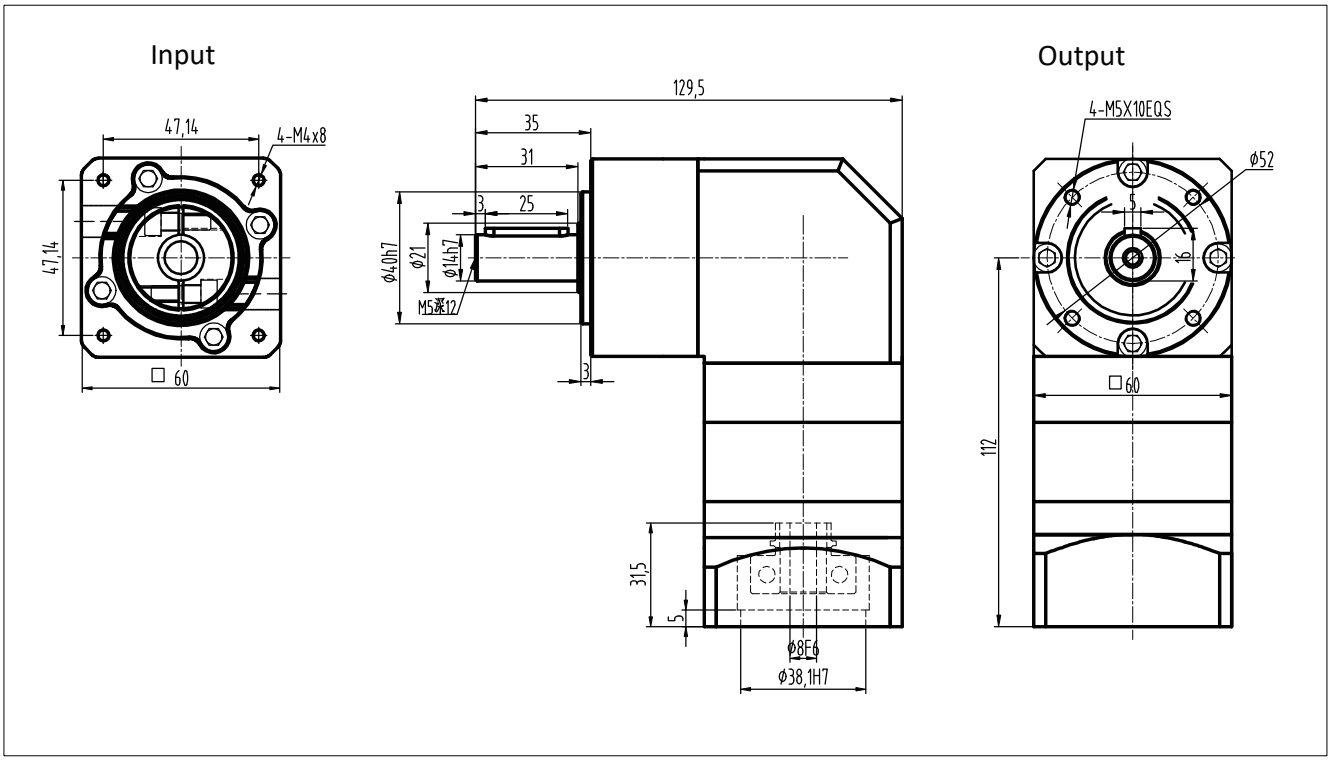
Model	Unit	NZPLE057	NZPLE086	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		-	96	16	
		-	96	20	
		-	105.5	25	
		-	96 (96)	28(32)	
		-	105.5	35	
		-	96	40	
		-	105.5 (105.5)	50(64)	
		-	71.5	70	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3000		
Maximum input speed	rmp	6000	6000		
Maximum radial force	N	605	1270		
Maximum axial force	N	490	1100		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	2.2	4.7		1
		-	5.3		2

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

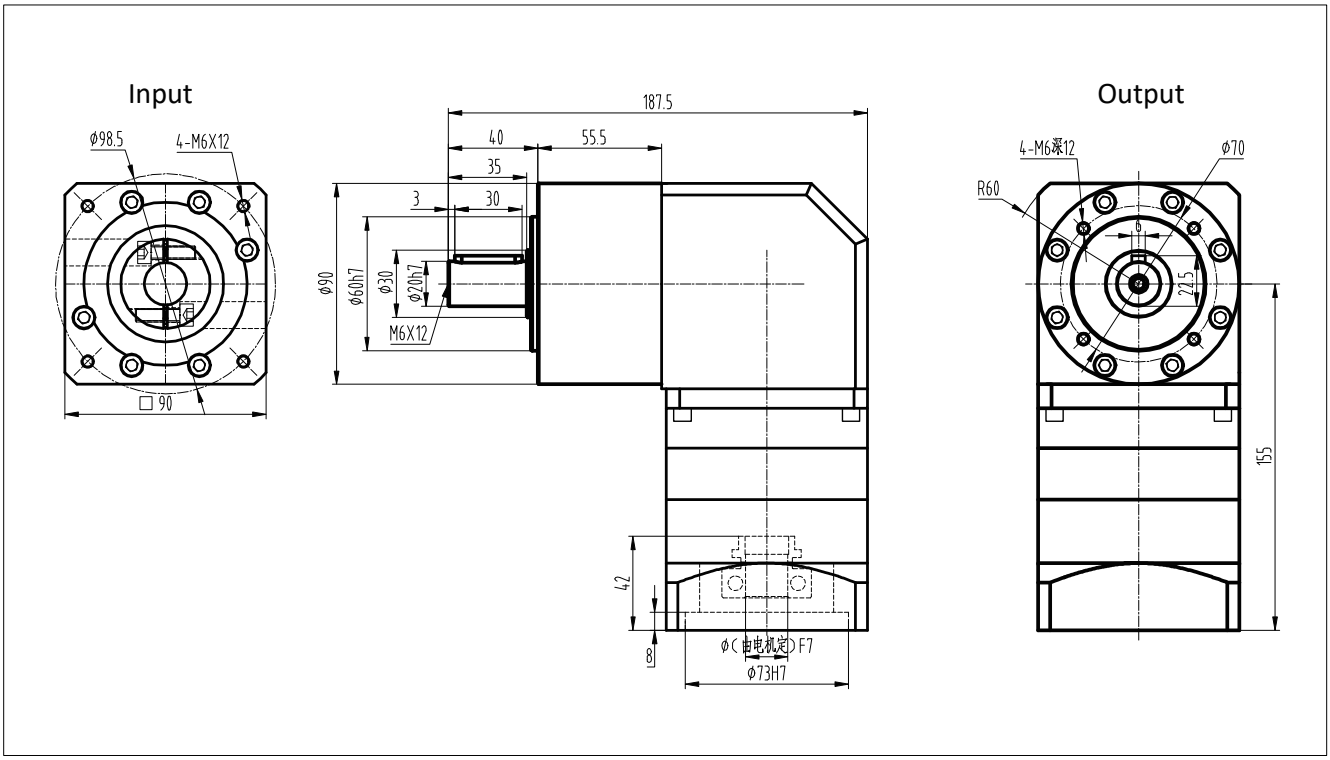
Model	Unit	NZPLE057	NZPLE086	Ratio	Stage
Moment of inertia	kgcm²	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		-	0.309	16	
		-	0.291	20	
		-	0.291	25	
		-	0.285	28(32)	
		-	0.285	35	
		-	0.283	40	
		-	0.283	50(64)	
		-	0.283	70	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

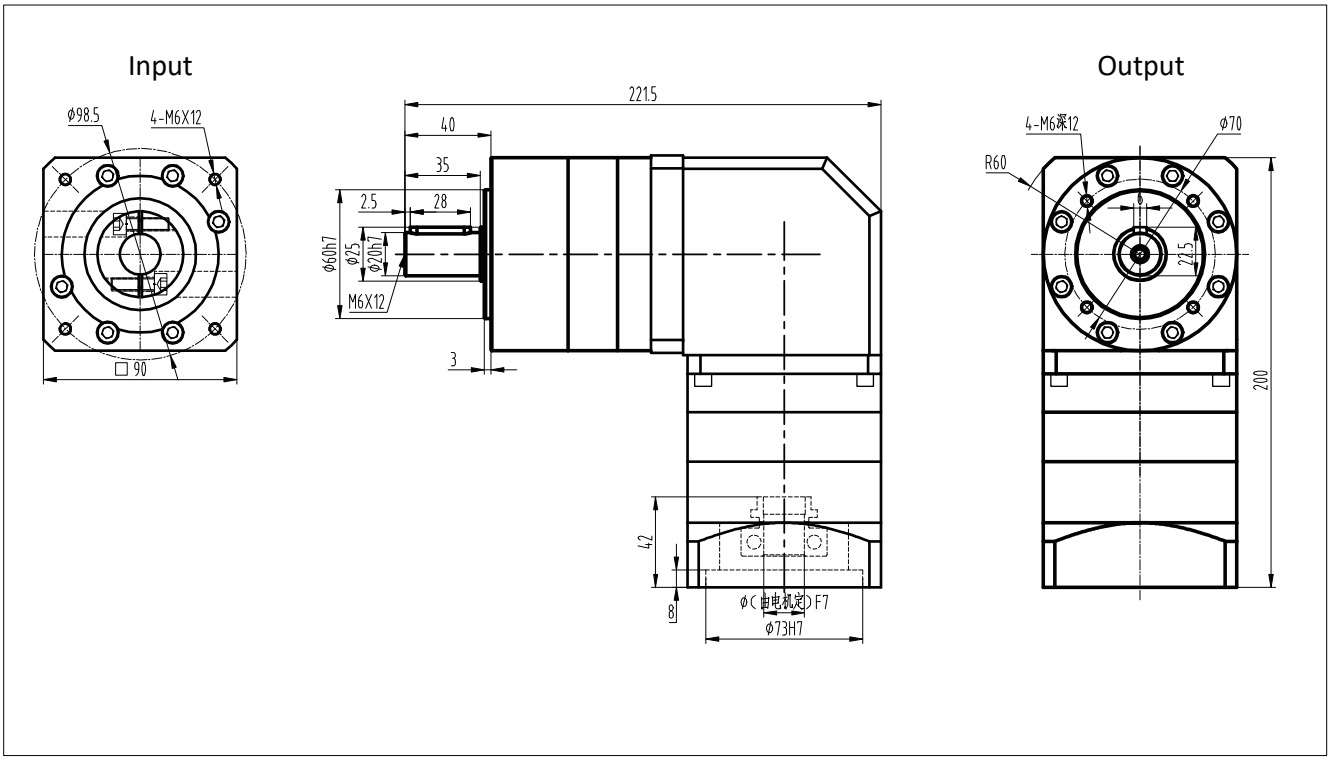
NZPLE057-L1 External dimensions



NZPLE086-L1 External dimensions



NZPLE086-L2 External dimensions



NZPLF Stepper Right-Angle Square-Flange Planetary Gearbox

Product name

Example：NZPLF 057 - L1 - (3) - 14 - 003 - YT - 8

Performance parameters of the reducer

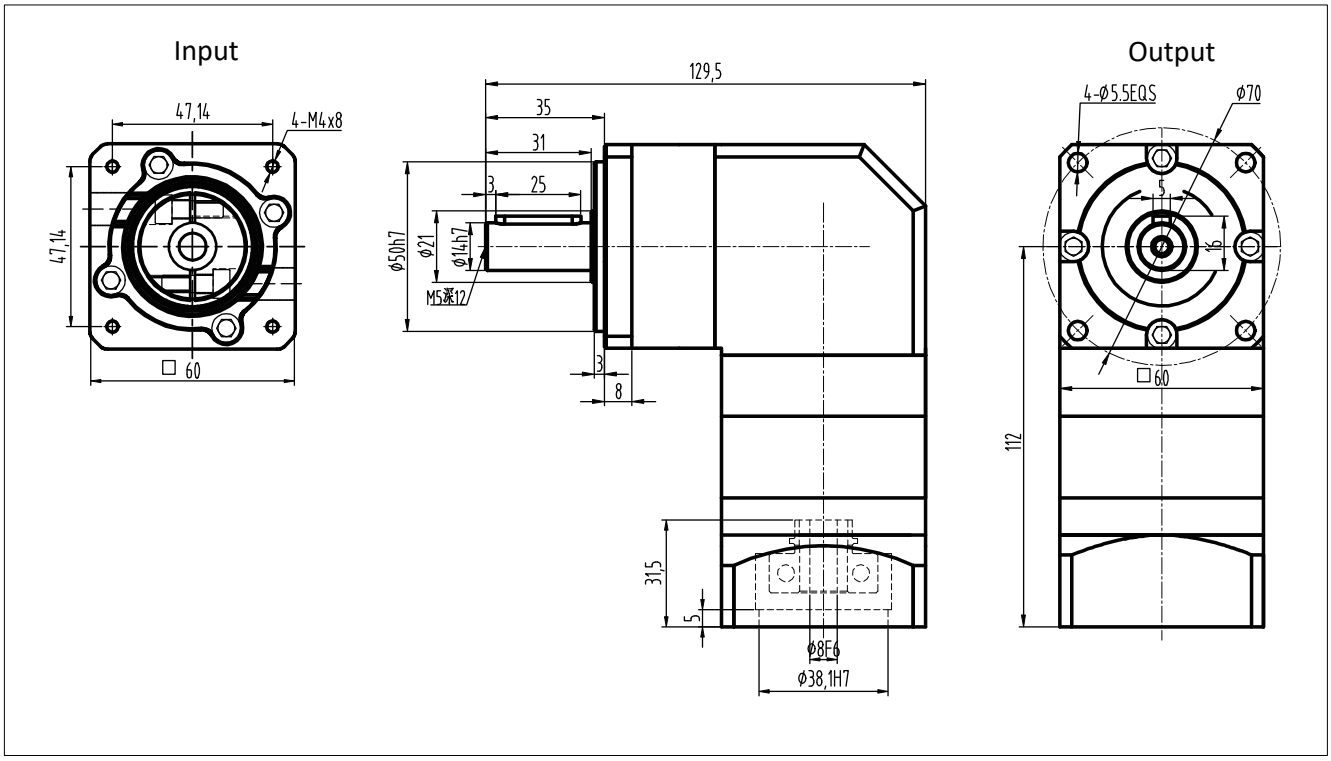
Model	Unit	NZPLF057	NZPLF086	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30(30)	96(96)	28(32)	
		33	105.5	35	
		30	96	40	
		33(33)	105.5(105.5)	50(64)	
		21.5	71.5	70	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3000		
Maximum input speed	rmp	6000	6000		
Maximum radial force	N	605	1270		
Maximum axial force	N	490	1100		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	2.2	4.7		1
		2.5	5.3		2

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

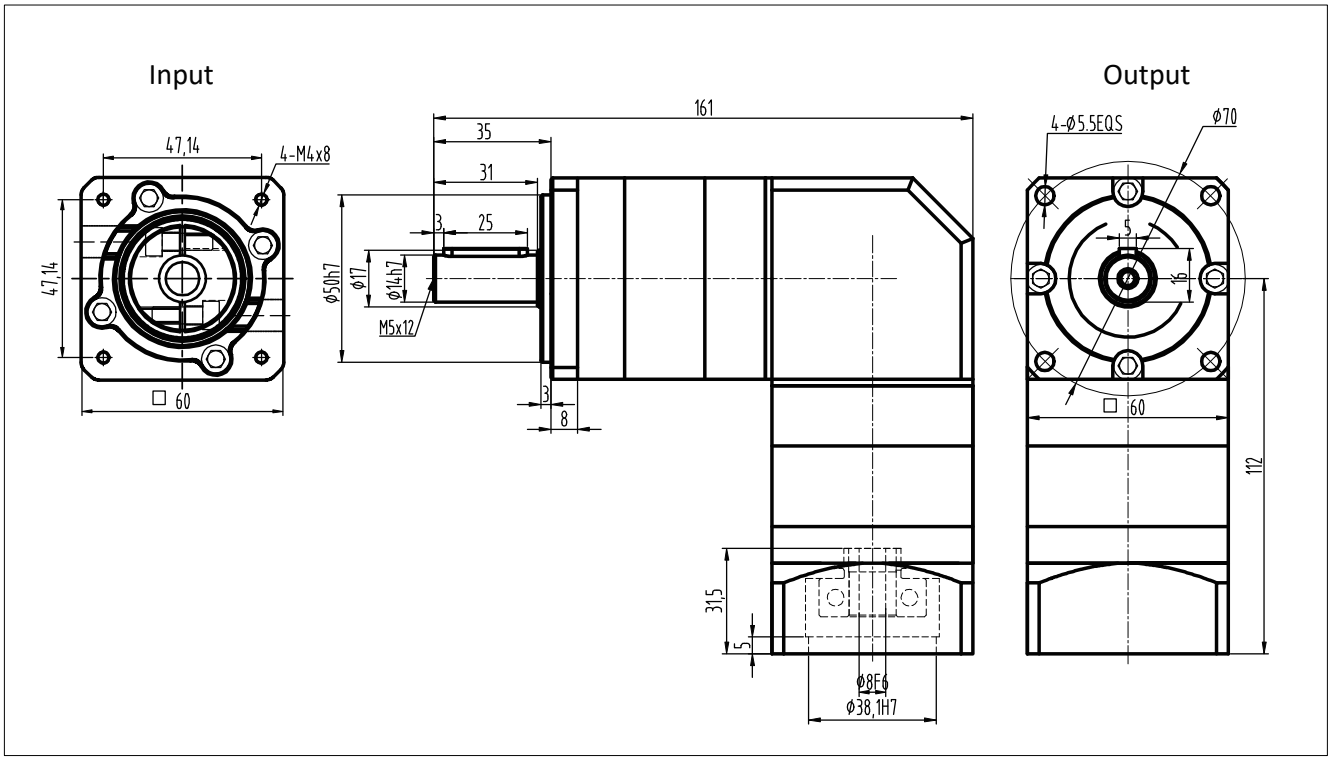
		NZPLF057	NZPLF086		
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28(32)	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50(64)	
		0.091	0.283	70	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

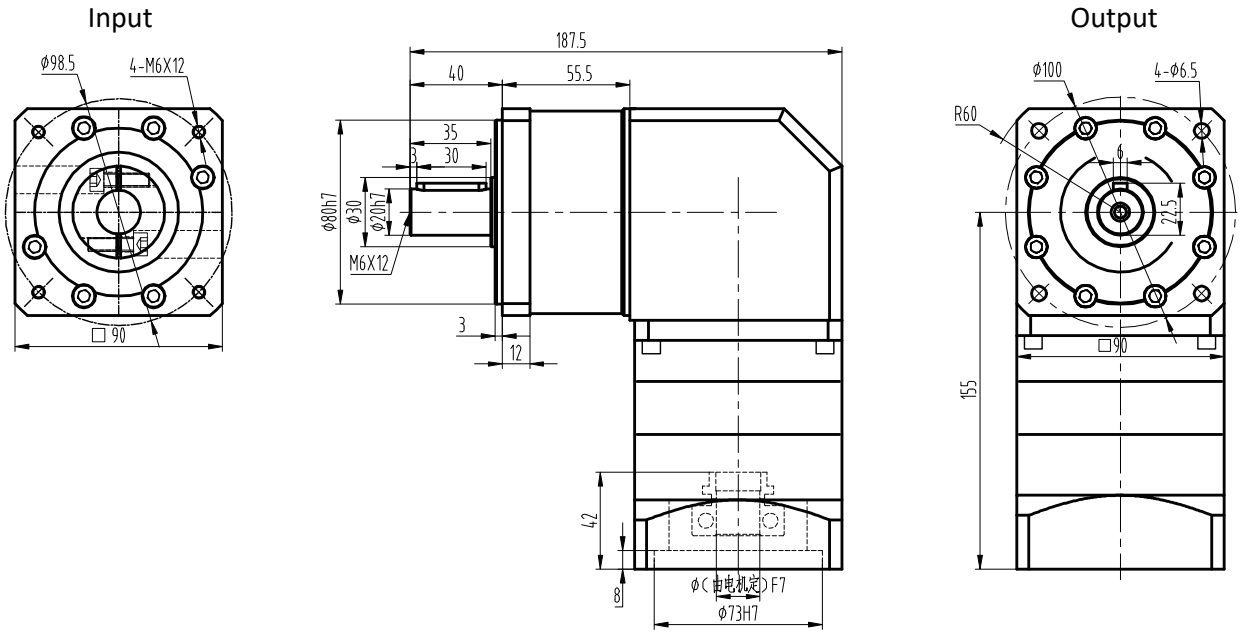
NZPLF057-L1 External dimensions



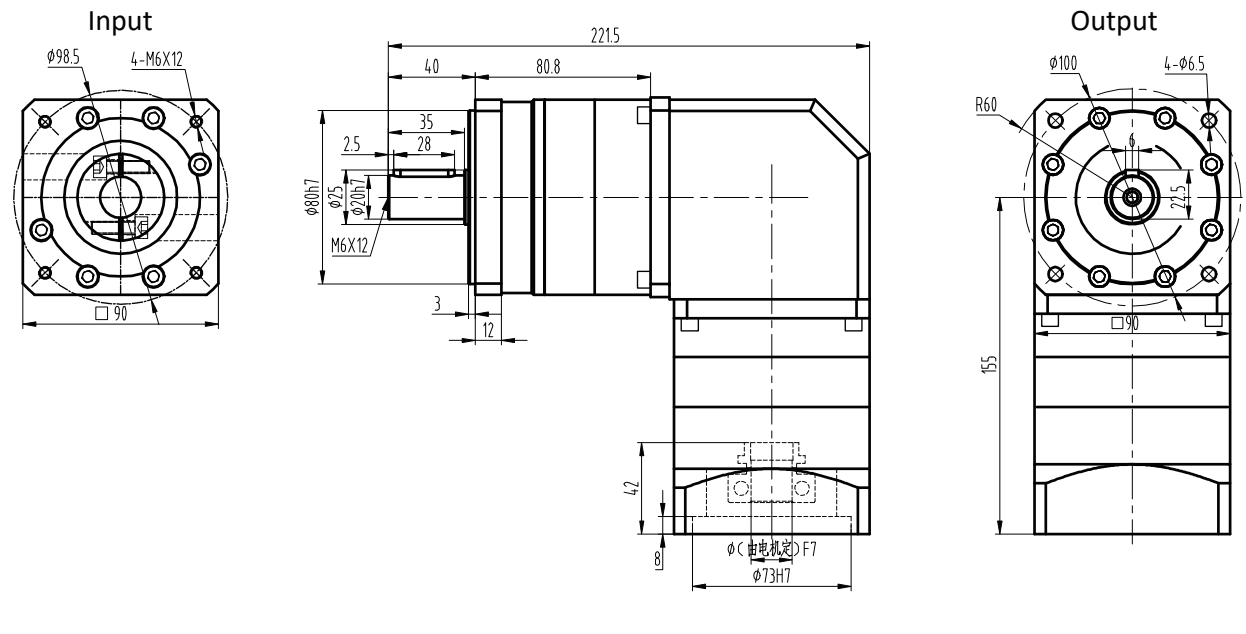
NZPLF057-L2 External dimensions



NZPLF086-L1 External dimensions



NZPLF086-L2 External dimensions



NZPLFK Stepper Motor Right-Angle Flange Output Planetary Gearbox

Product name

Example：NZPLFK 057 - L1 - (3) - 10 - 003 - YT - 8

Performance parameters of the reducer

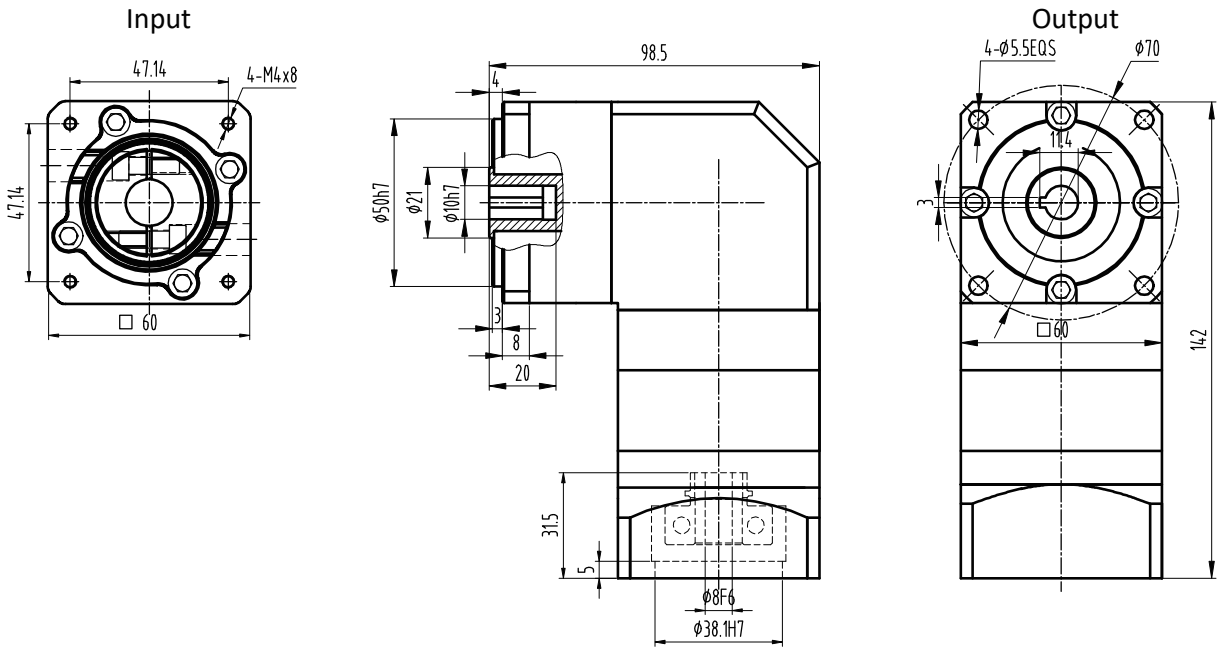
Model	Unit	NZPLFK057	NZPLFK086	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28	
		33	105.5	35	
		30	96	40	
		33	105.5	50	
		21.5	71.5	70	
		37.5	120	64	3
		37.5	120	80	
		37.5	120	100	
		41	132	125	
		37.5	120 (120)	140(160)	
		41	132	175	
		37.5	120	200	
		41	132	250	
		37.5	120	280	
		41	132	350	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3500		
Maximum input speed	rmp	8000	6000		
Maximum radial force	N	670	1420		
Maximum axial force	N	550	1250		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	2.2	4.7		1
		2.5	5.3		2
		2.8	5.3		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

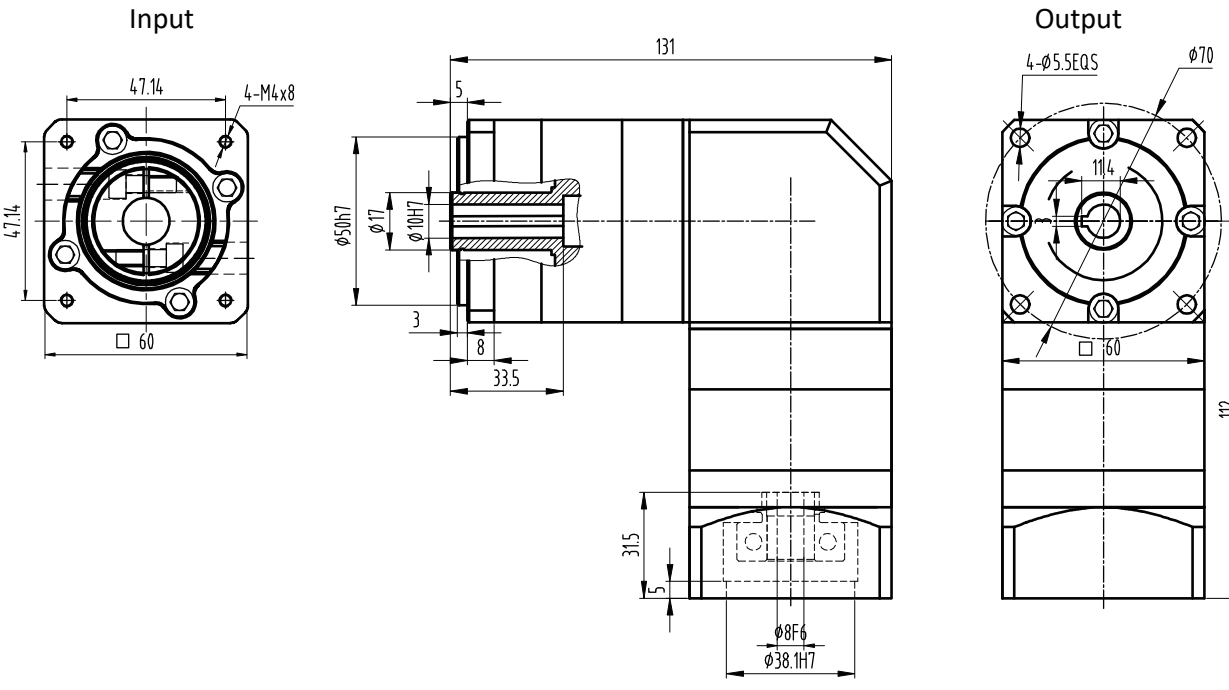
Model	Unit	NZPLFK057	NZPLFK086	Ratio	Stage
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50	
		0.091	0.283	70	
		0.092	0.291	64	3
		0.092	0.291	80	
		0.092	0.291	100	
		0.092	0.291	125	
		0.091	0.285 (0.285)	140(160)	
		0.091	0.285	175	
		0.091	0.283	200	
		0.091	0.283	250	
		0.091	0.283	280	
		0.091	0.283	350	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

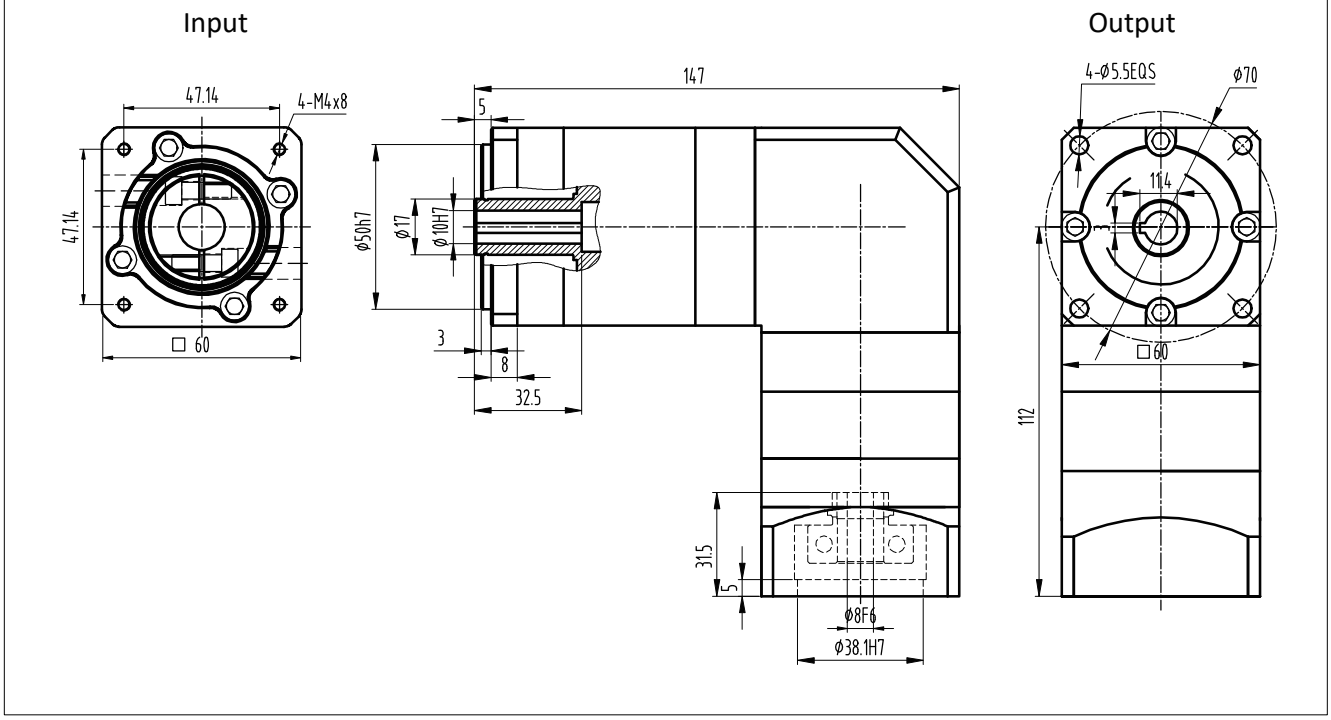
NZPLFK057-L1 External dimensions



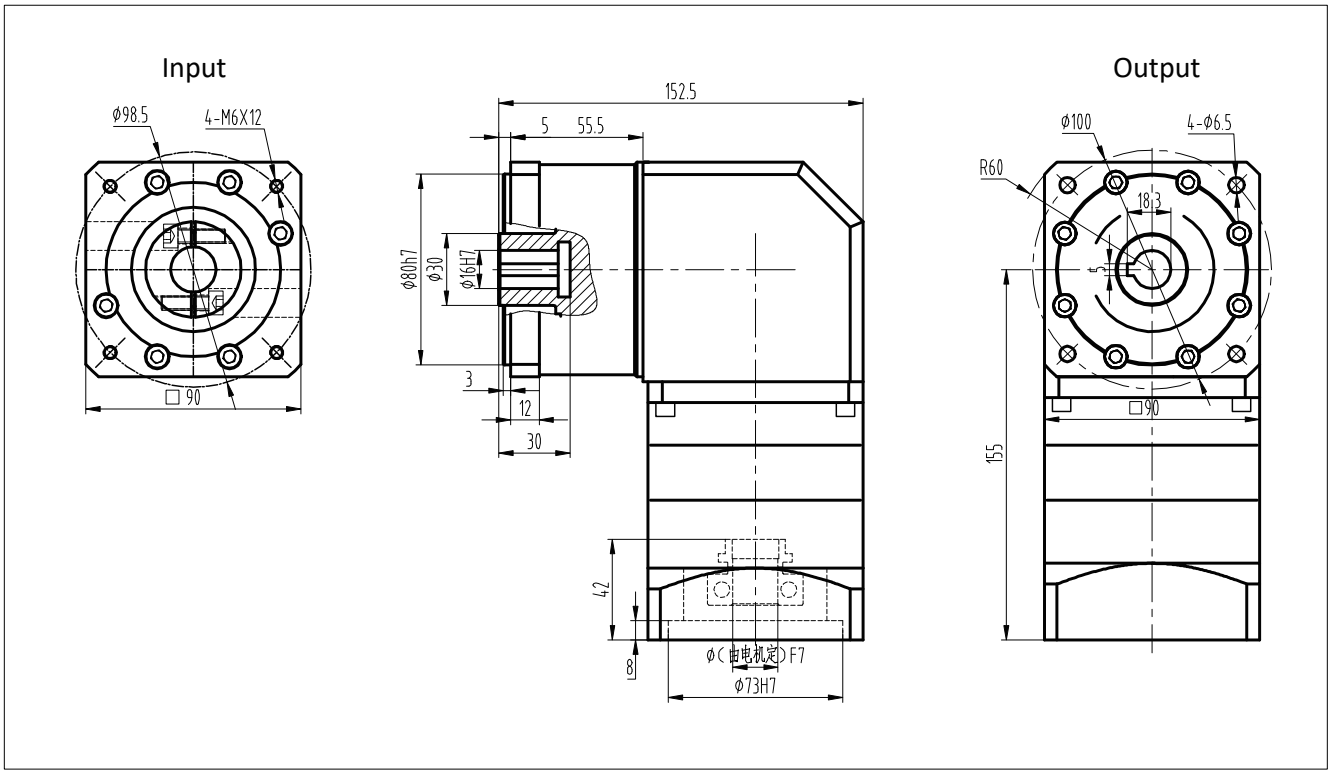
NZPLFK057-L2 External dimensions



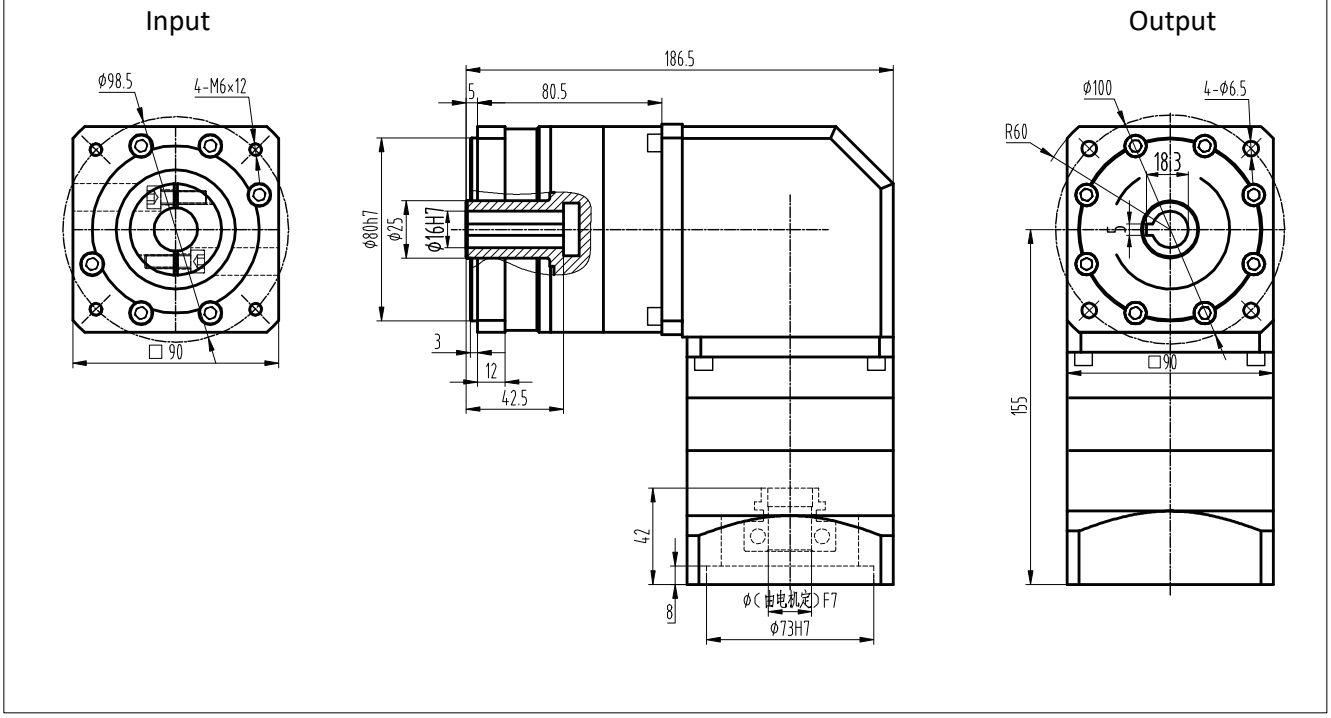
NZPLFK057-L3 External dimensions



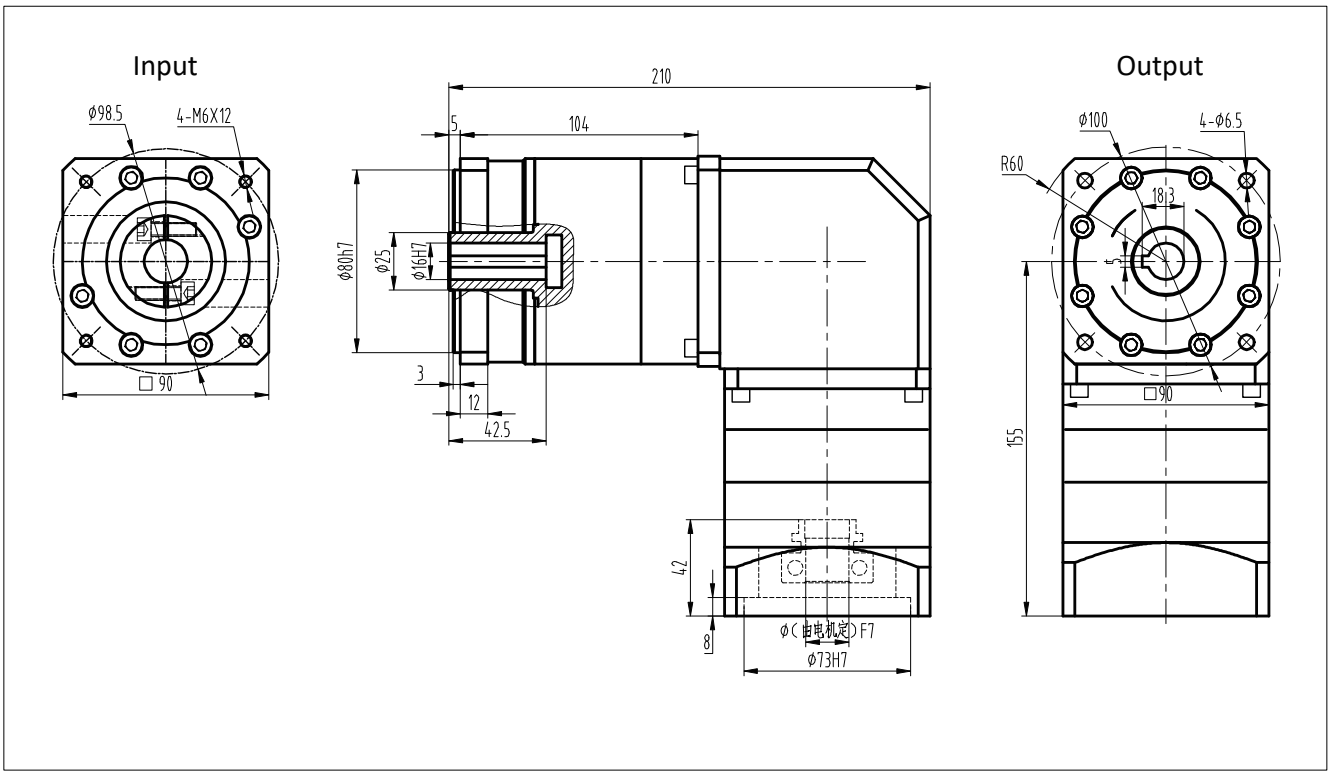
NZPLFK086-L1 External dimensions



NZPLFK086-L2 External dimensions



NZPLFK086-L3 External dimensions



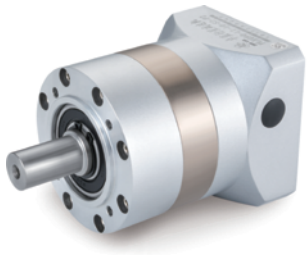
NPL Series Servo Gearbox Model Numbering Explanation

Example: NPL F XX - L1 - (3) - 20 - 002 - YT - 8

- NPL: Coaxial reducer
  NZPL: Right-angle reducer
- F: Method blue, E: Method blue
  FK: Method blue hole output
- XX: Motor base Specifications (42/57/86/40/60/80)
- L1: Level 1, L2: Level 2, L3: Level 3
- (3) : Deceleration ratio (see inside pages and drawings for details)
- 20: Output axle diameter (see inside pages and drawings for details)
- 002: Connection flange No. (See inside pages and drawings for details)
- YT: Integrated flange, FT split flange (see inside page and drawings for details)
- 8: Motor input shaft diameter (see inside pages and drawings for details)

NPLE Servo Coaxial Round-Flange Planetary Gearbox

Product name



Example：NPLE 040 - L1 - (3) - 10 - 002 - YT - 8

Performance parameters of the reducer

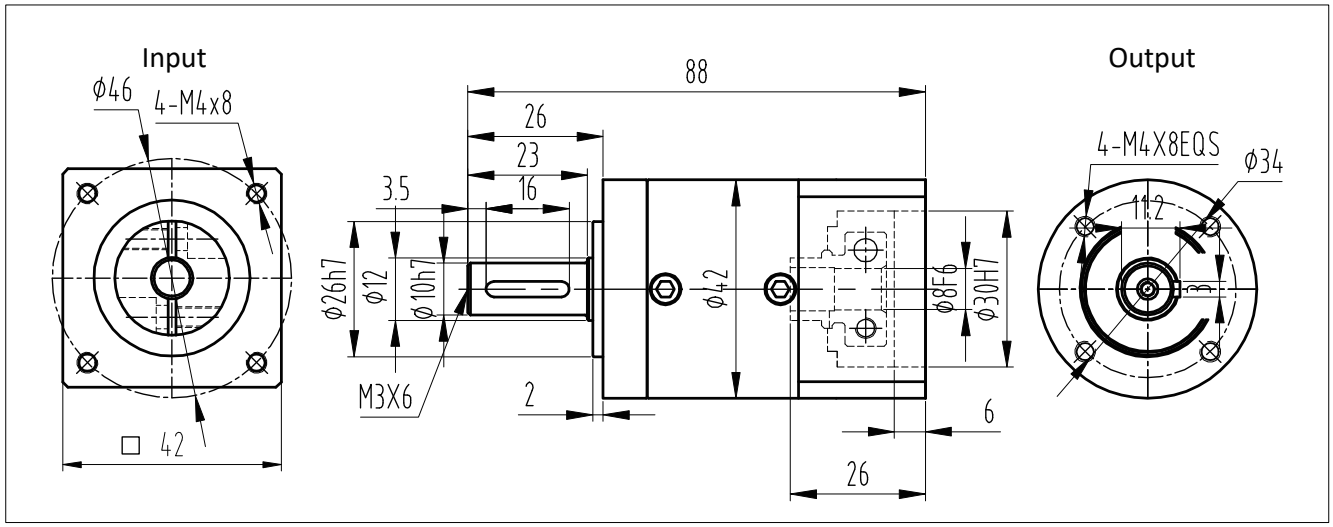
Model	Unit	NPLE040	NPLE060	NPLE080	Ratio	Stage
Rated output torque	N·m	6.0	16.5	60	3	1
		9.0	27	86	4	
		9.0	27	94.5	5	
		(7.0)	19.5	64	7 (8)	
		-	8.5	39.5	10	
		-	-	96	12	2
		-	-	96	15	
		12	30	96	16	
		12	30	96	20	
		10.5	33	105.5	25	
		(12)	30	96	28(32)	
		-	33	105.5	35	
		10.5	30	96	40	
		(8)	33	105.5	50 (64)	
		-	21.5	71.5	70	
		15.5	37.5	120	64	3
		15.5	37.5	120	80	
		15.5	37.5	120	100	
		9.0	(41)	(132)	120 (125)	
		(15.5)	37.5	120 (120)	140(160)	
		-	41	132	175	
		13.5	37.5	120	200	
		(15.3)	41	132	250 (256)	
		(13.5)	37.5	120	280(320)	
		(7.50)	41	132	350(512)	
Emergency stop torque	N·m	2 times Rated output torque				
Norminal input speed	rmp	3000	4000	3000		
Maximum input speed	rmp	4500	8000	6000		
Maximum radial force	N	185	670	1420		
Maximum axial force	N	150	550	1250		
Efficiency	%	＞90%				
Average lifetime	h	20000				
Weight	kg	0.5	1.0	2.8		1
		0.6	1.3	3.4		2
		0.7	1.4	4.0		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

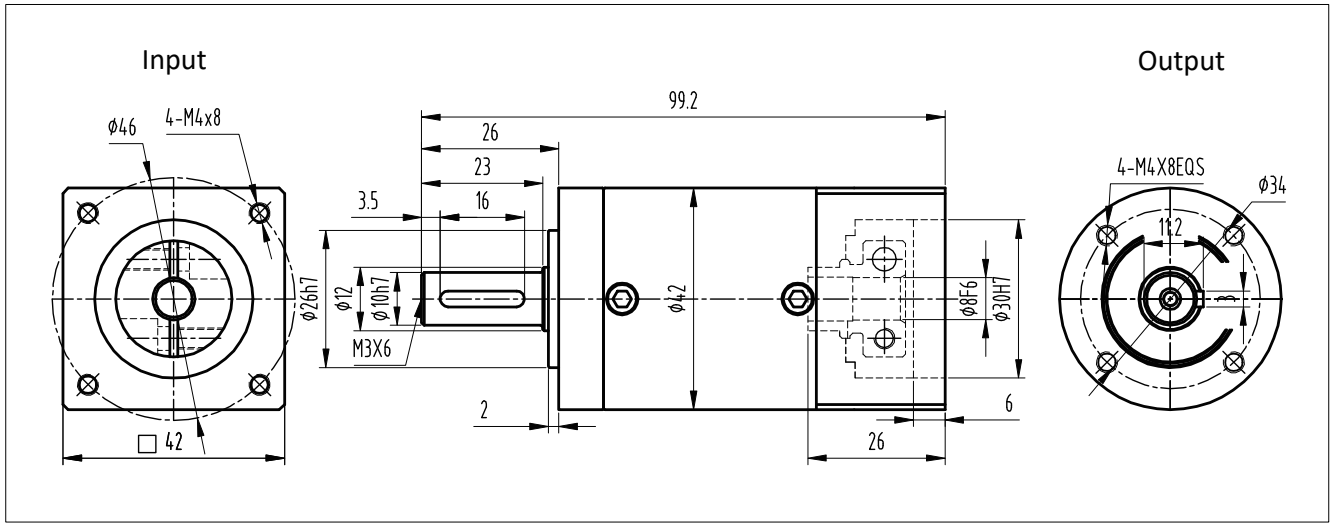
Model	Unit	NPLE040	NPLE060	NPLE080	Ratio	Stage
Moment of inertia	$kgcm^2$	0.03	0.107	0.400	3	1
		0.022	0.094	0.309	4	
		0.019	0.092	0.291	5	
		(0.017)	0.091	0.285	7 (8)	
		-	0.091	0.283	10	
		-	-	0.400	12	2
		-	-	0.400	15	
		0.022	0.094	0.309	16	
		0.019	0.092	0.291	20	
		0.019	0.092	0.291	25	
		(0.017)	0.091	0.285	28(32)	
		-	0.091	0.285	35	
		0.016	0.091	0.283	40	
		(0.016)	0.091	0.283	50(64)	
		-	0.091	0.283	70	
		0.019	0.092	0.291	64	3
		0.019	0.092	0.291	80	
		0.019	0.094	0.291	100	
		0.029	0.092	0.291	120 (125)	
		(0.016)	0.092	0.285(0.285)	140(160)	
		-	0.091	0.285	175	
		0.016	0.091	0.283	200	
		(0.016)	0.091	0.283	250 (256)	
		(0.016)	0.091	0.283	280(320)	
		(0.016)	0.091	0.283	350(512)	
Noise	dB	60	60	65		
Lubricating		Synthetic grease lubrication				
levels of protection		IP54				

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

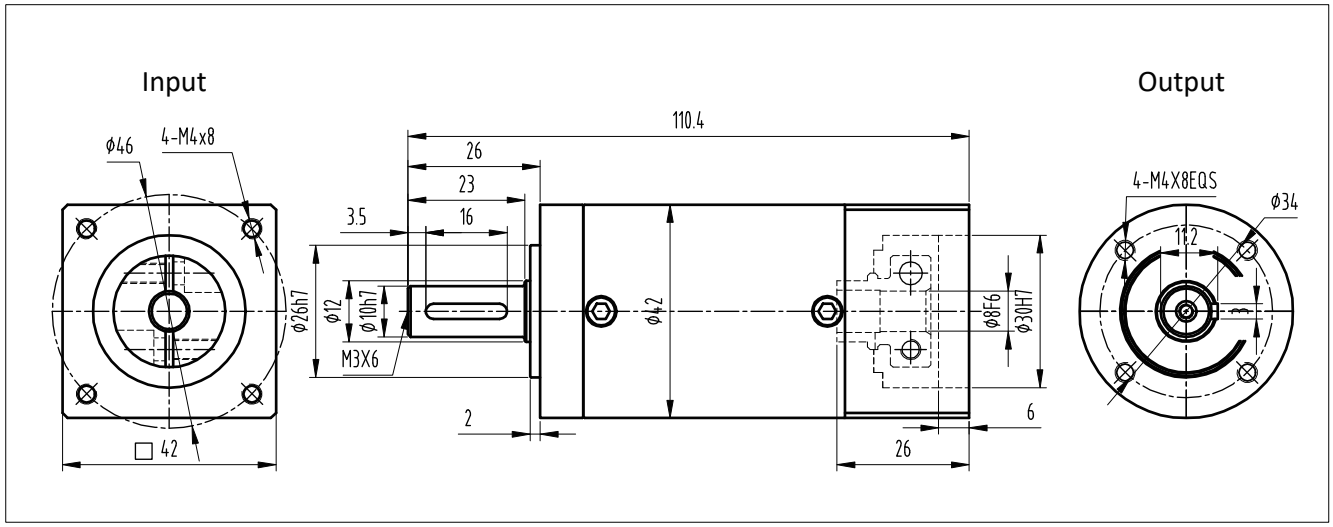
NPLE040-L1 External dimensions



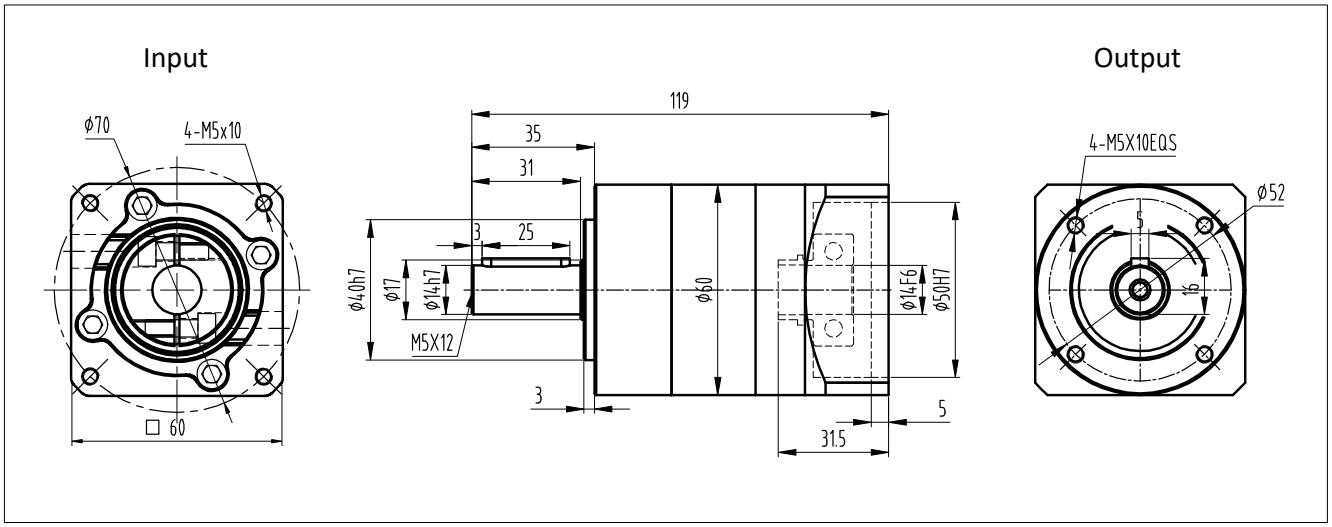
NPLE040-L2 External dimensions



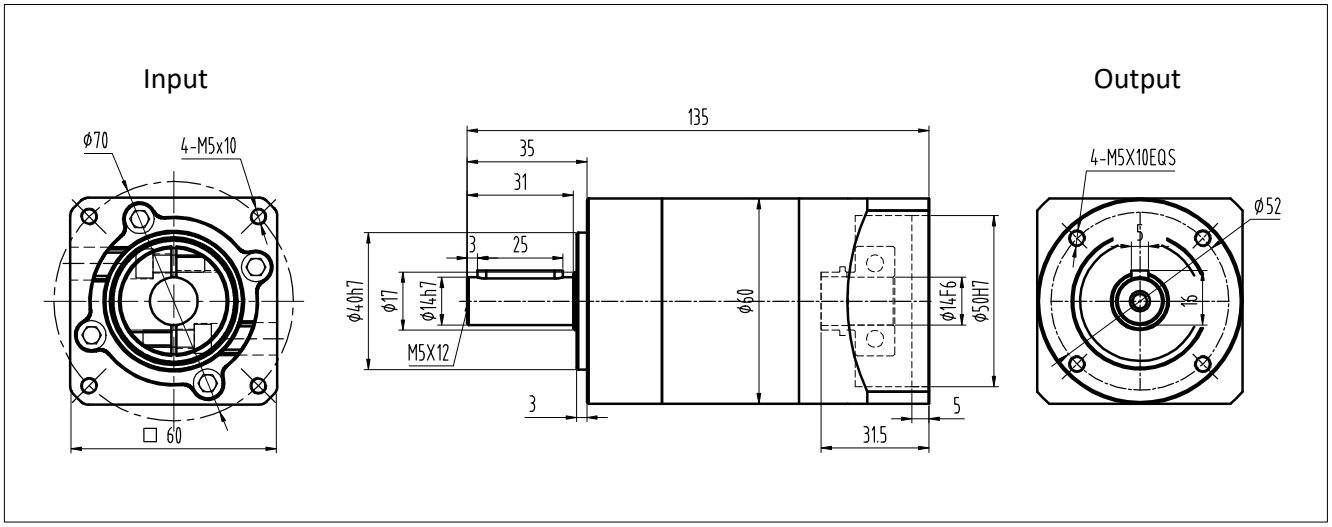
NPLE040-L3 External dimensions



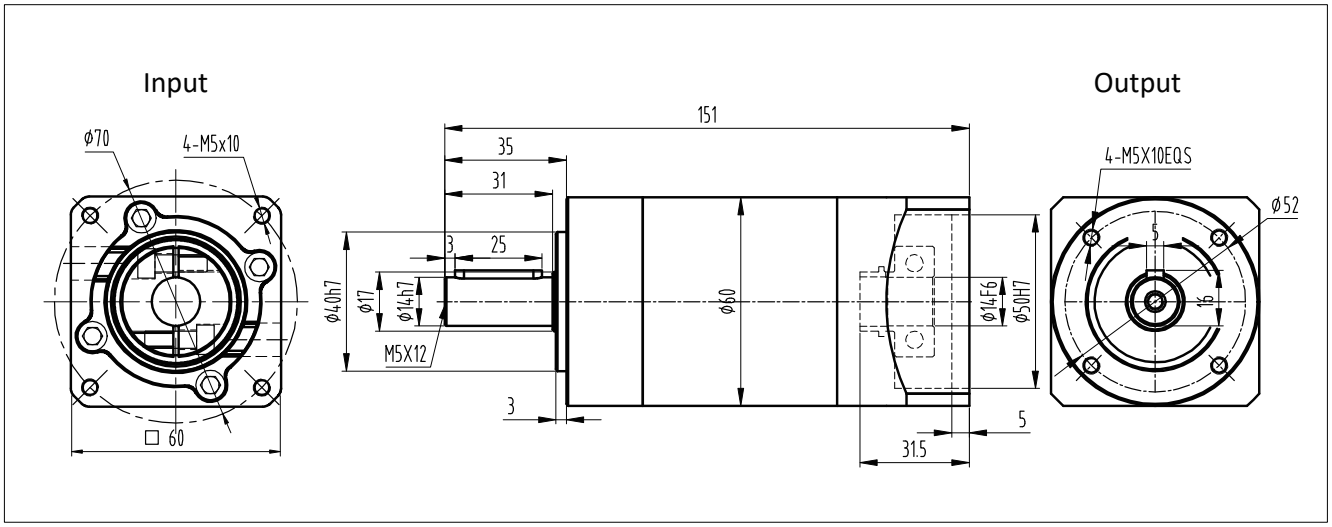
NPLE060-L1 External dimensions



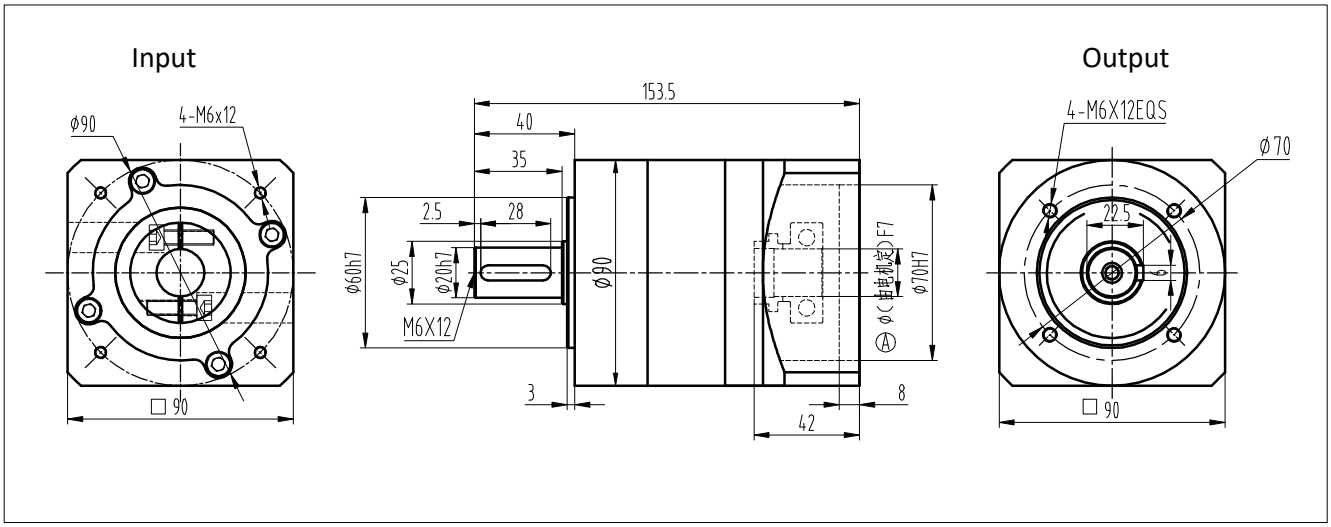
NPLE060-L2 External dimensions



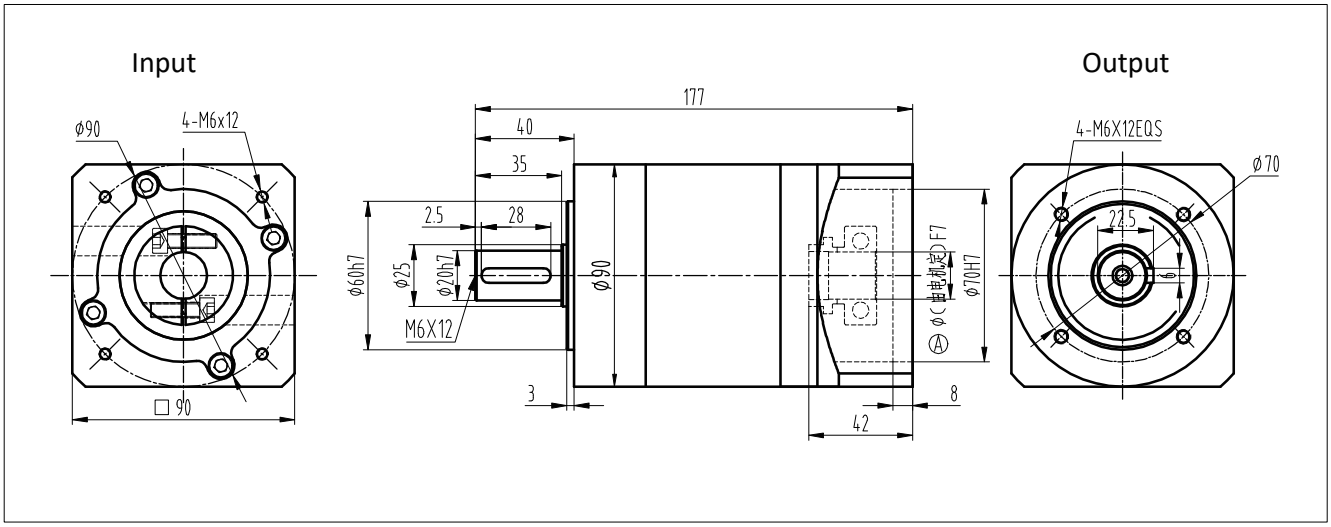
NPLE060-L3 External dimensions



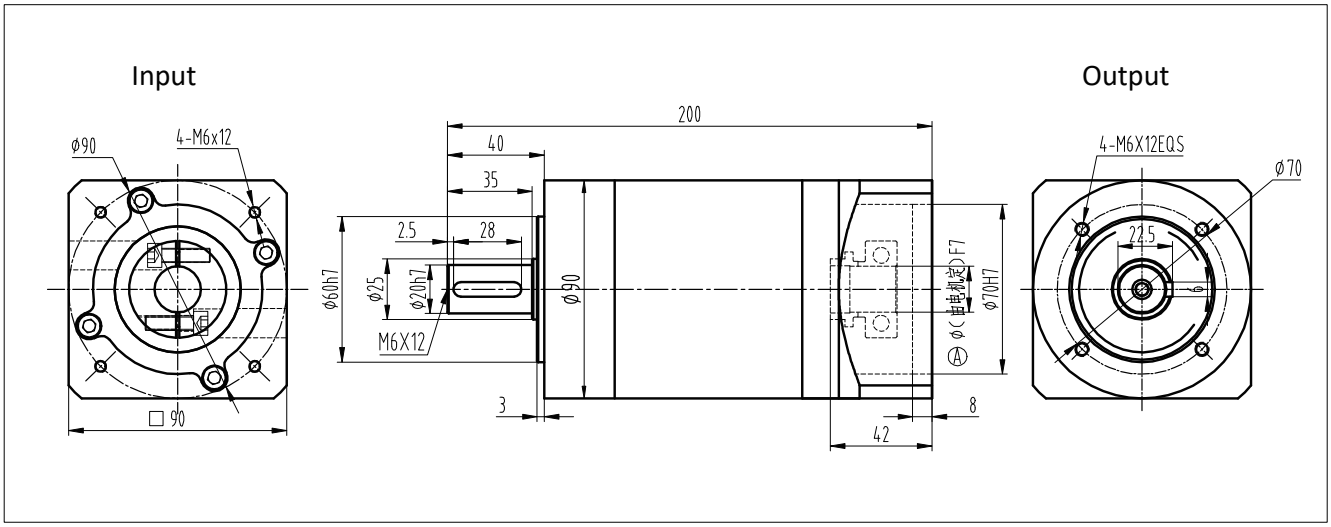
NPLE080-L1 External dimensions



NPLE080-L2 External dimensions

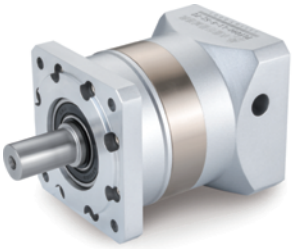


NPLE080-L3 External dimensions



NPLF Servo In-Line Square-Flange Planetary Gearbox

Product name



Example：NPLF 040 - L1 - (3) - 10 - 002 - YT - 8

Performance parameters of the reducer

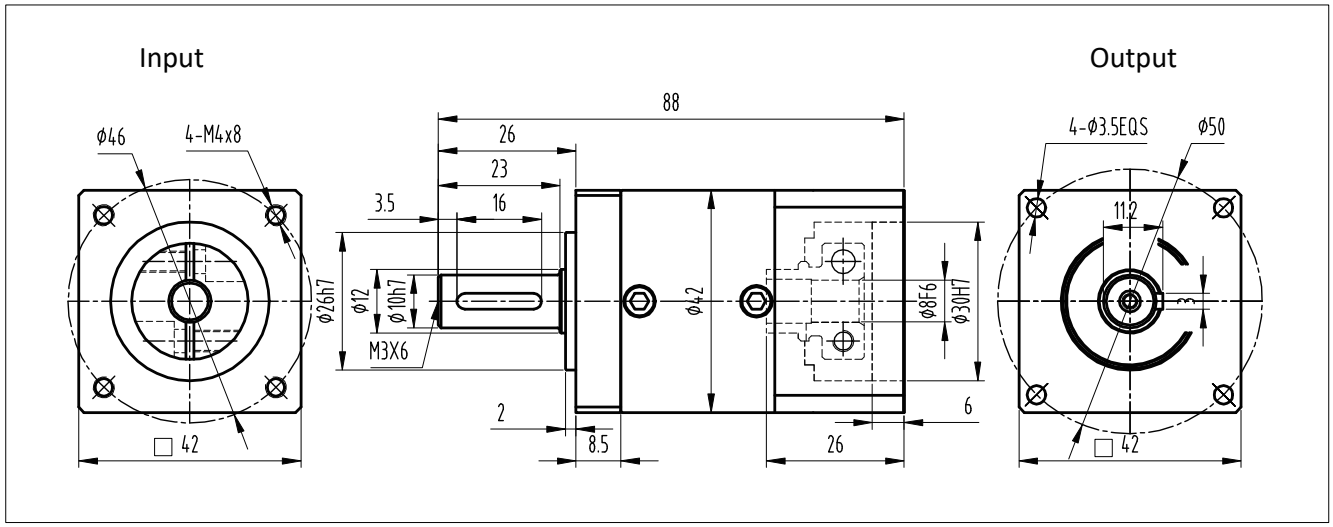
		NPLF040	NPLF060	NPLF080		
Rated output torque	N·m	6.0	16.5	60	3	1
		9.0	27	86	4	
		9.0	27	94.5	5	
		(7.0)	19.5	64	7 (8)	
		-	8.5	39.5	10	
		-	-	96	12	2
		-	-	96	15	
		12	30	96	16	
		12	30	96	20	
		10.5	33	105.5	25	
		(12)	30	96	28(32)	
		-	33	105.5	35	
		10.5	30	96	40	
		(8)	33	105.5	50 (64)	
		-	21.5	71.5	70	
		15.5	37.5	120	64	3
		15.5	37.5	120	80	
		15.5	37.5	120	100	
		9.0	(41)	(132)	120 (125)	
		(15.5)	37.5	120(120)	140(160)	
		-	41	132	175	
		13.5	37.5	120	200	
		(15.3)	41	132	250 (256)	
		(13.5)	37.5	120	280(320)	
		(7.50)	41	132	350(512)	
Emergency stop torque	N·m	2 times Rated output torque				
Norminal input speed	rmp	3000	4000	3000		
Maximum input speed	rmp	4500	8000	6000		
Maximum radial force	N	185	670	1420		
Maximum axial force	N	150	550	1250		
Efficiency	%	＞90%				
Average lifetime	h	20000				
Weight	kg	0.5	1.0	2.8		1
		0.6	1.3	3.4		2
		0.7	1.4	4.0		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

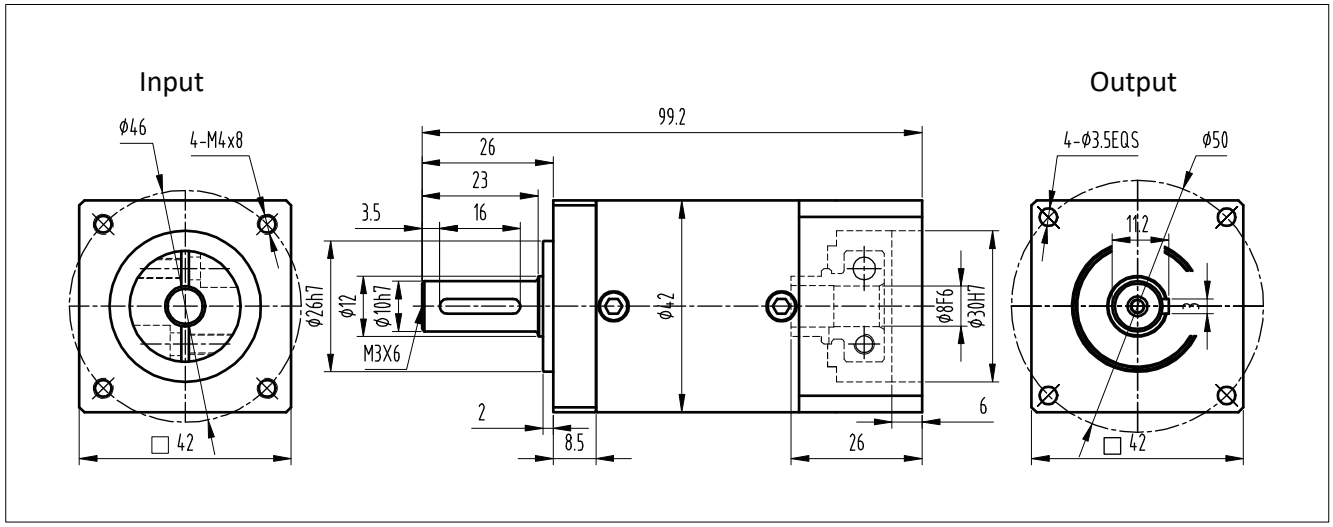
Model	Unit	NPLF040	NPLF060	NPLF080	Ratio	Stage
Moment of inertia	$kgcm^2$	0.03	0.107	0.400	3	1
		0.022	0.094	0.309	4	
		0.019	0.092	0.291	5	
		(0.017)	0.091	0.285	7 (8)	
		-	0.091	0.283	10	
		-	-	0.400	12	2
		-	-	0.400	15	
		0.022	0.094	0.309	16	
		0.019	0.092	0.291	20	
		0.019	0.092	0.291	25	
		(0.017)	0.091	0.285	28(32)	
		-	0.091	0.285	35	
		0.016	0.091	0.283	40	
		(0.016)	0.091	0.283	50(64)	
		-	0.091	0.283	70	
		0.019	0.092	0.291	64	3
		0.019	0.092	0.291	80	
		0.019	0.094	0.291	100	
		0.029	0.092	0.291	120 (125)	
		(0.016)	0.092	0.285 (0.285)	140(160)	
		-	0.091	0.285	175	
		0.016	0.091	0.283	200	
		(0.016)	0.091	0.283	250 (256)	
		(0.016)	0.091	0.283	280(320)	
		(0.016)	0.091	0.283	350(512)	
Noise	dB	60	60	65		
Lubricating		Synthetic grease lubrication				
levels of protection		IP54				

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

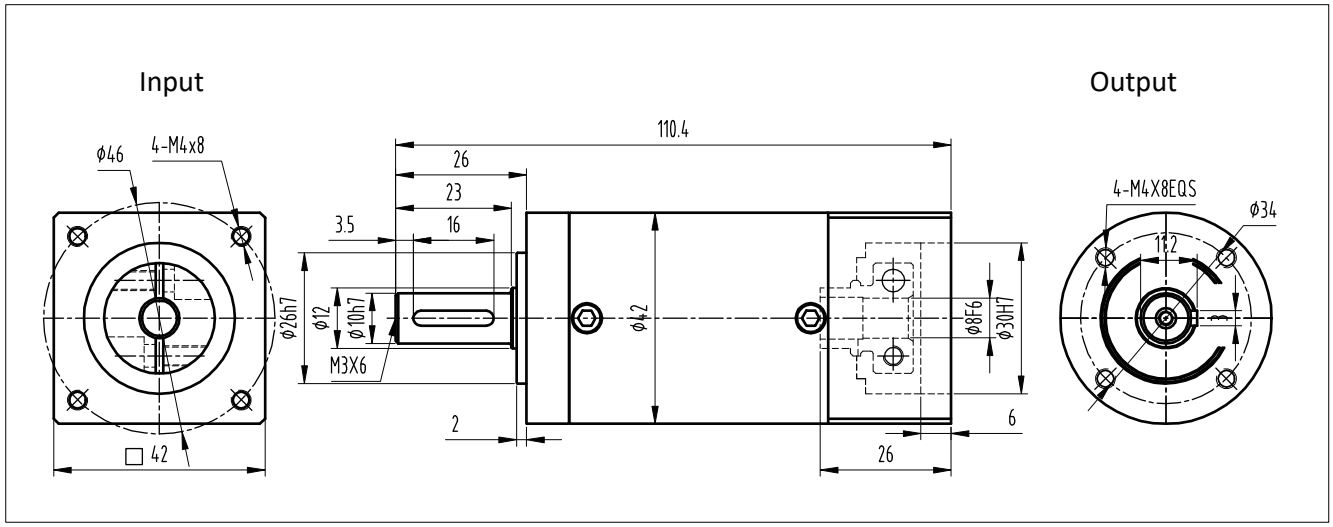
NPLF040-L1 External dimensions



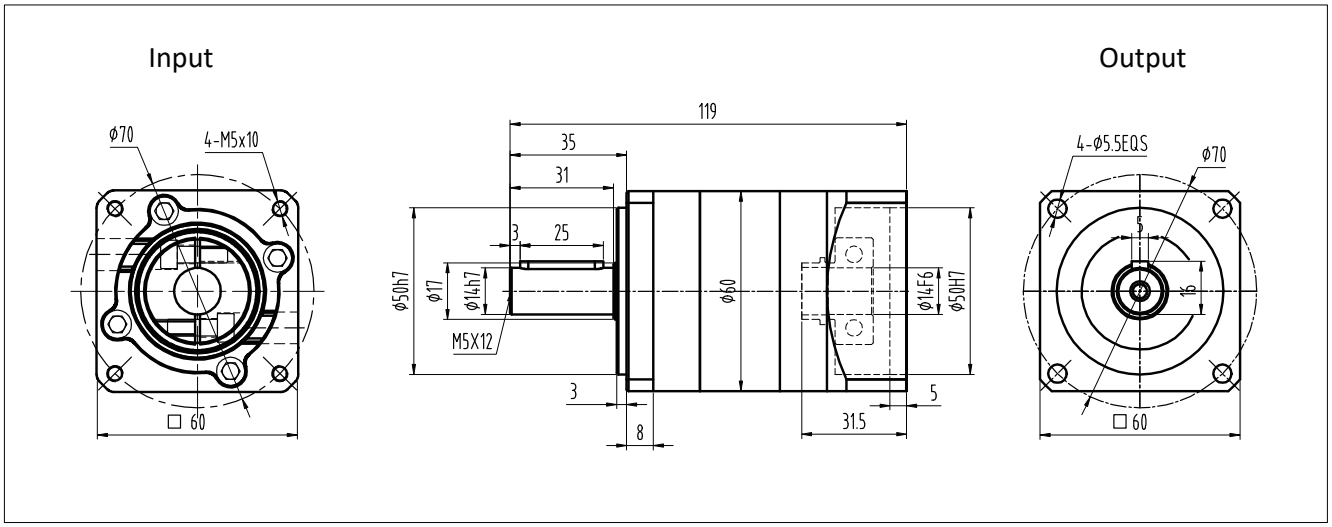
NPLF040-L2 External dimensions



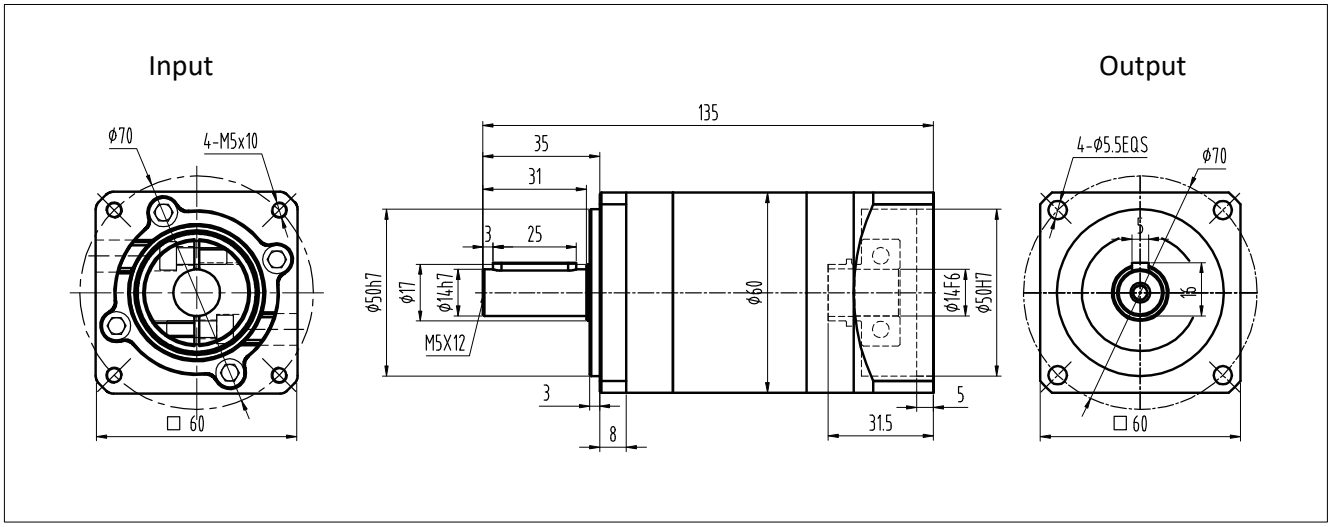
NPLF040-L3 External dimensions



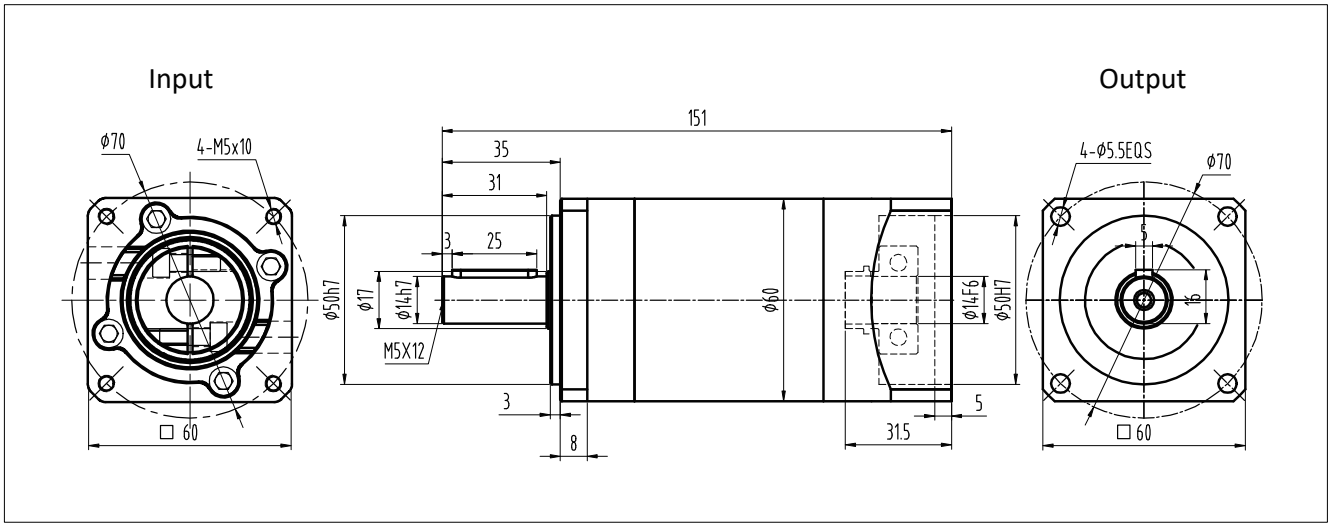
NPLF060-L1 External dimensions



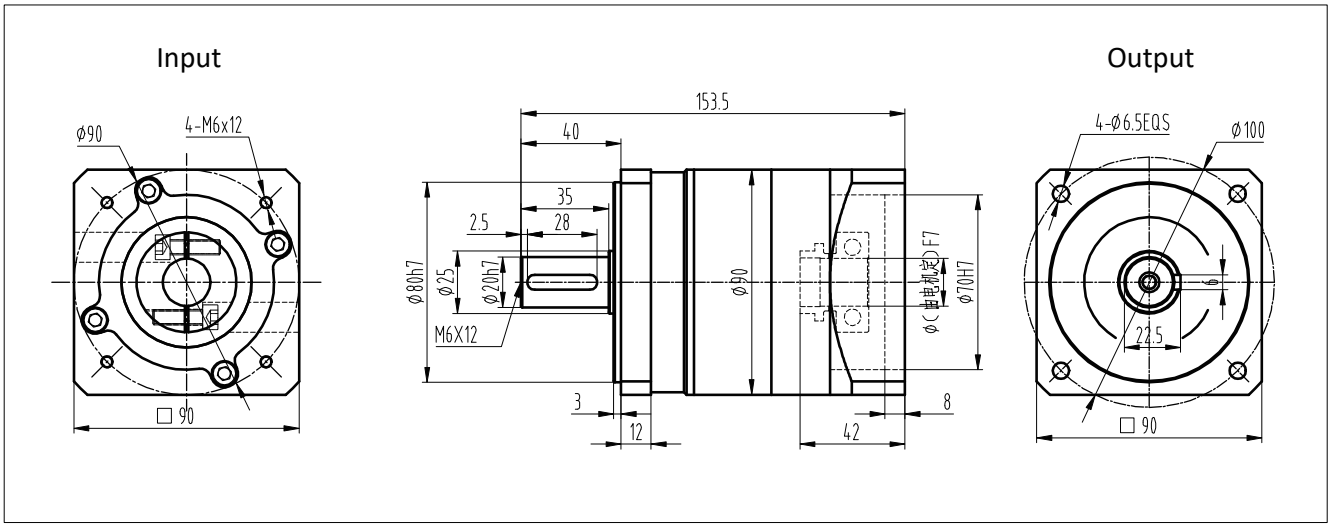
NPLF060-L2 External dimensions



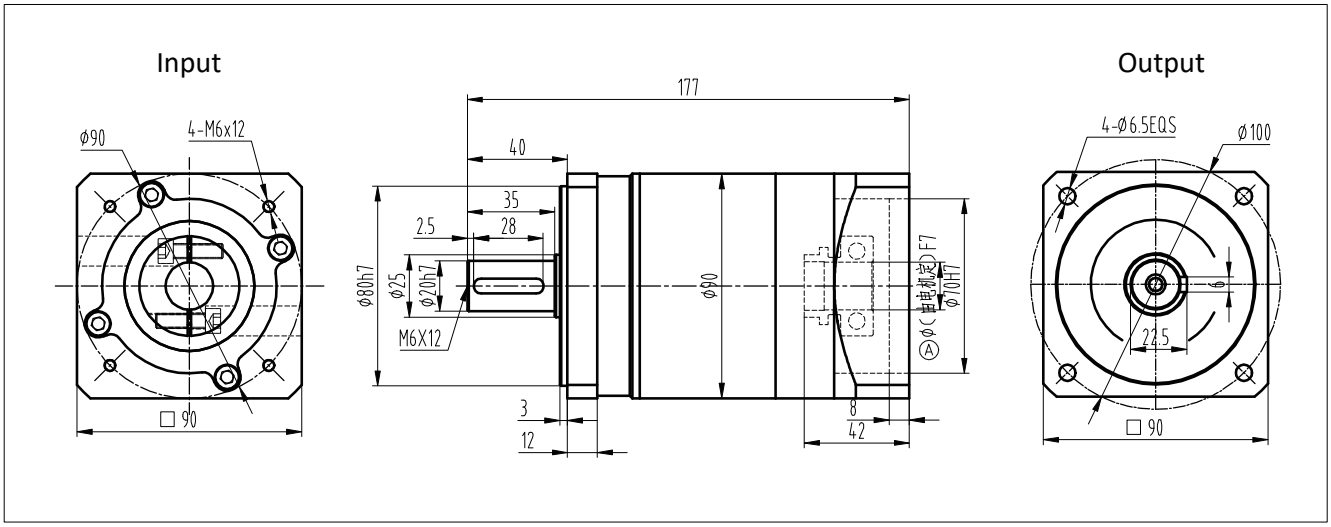
NPLF060-L3 External dimensions



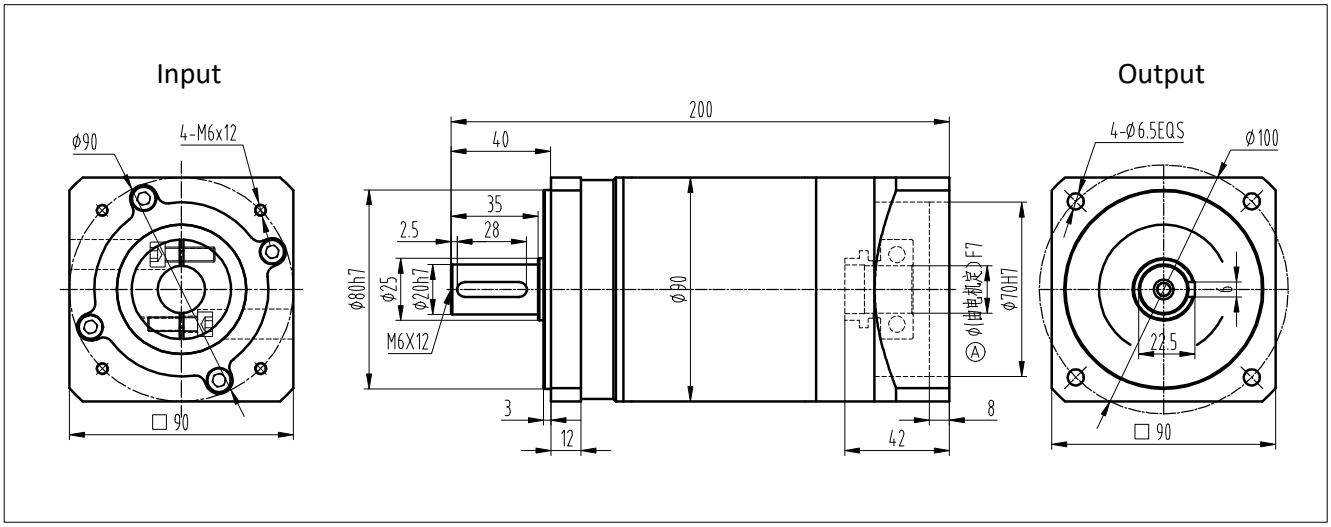
NPLF080-L1 External dimensions



NPLF080-L2 External dimensions



NPLF080-L3 External dimensions



NZPLE Servo Right-Angle Round-Flange Planetary Gearbox

Product name

Example：NZPLE 060 - L1 - （3） - 14 - 002 - YT - 14

Performance parameters of the reducer

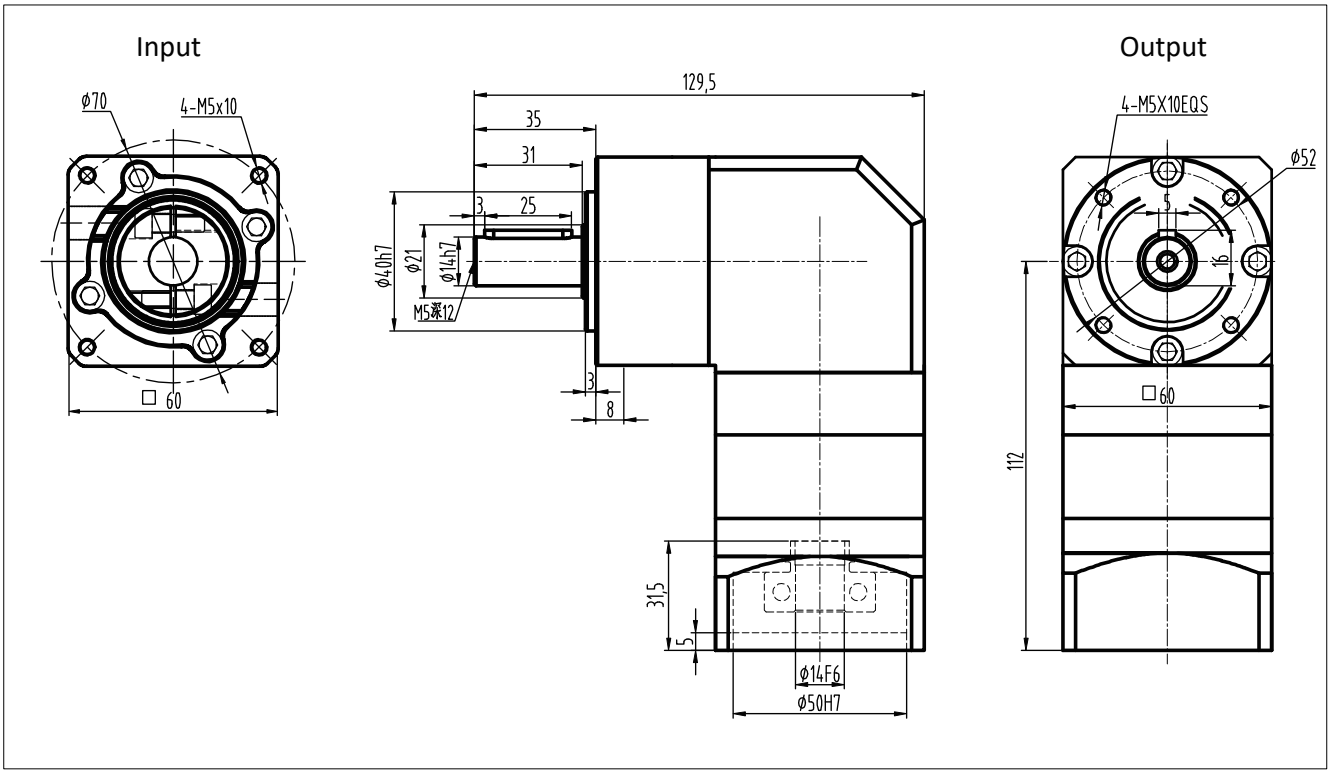
Model	Unit	NZPLE060	NZPLE080	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28	
		33	105.5	35	
		30	96	40	
		33	105.5	50	
		21.5	71.5	70	
		37.5	120	64	3
		37.5	120	80	
		37.5	120	100	
		41	132	125	
		37.5	120 (120)	140(160)	
		41	132	175	
		37.5	120	200	
		41	132	250	
		37.5	120	280	
		41	132	350	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3500		
Maximum input speed	rmp	4500	6000		
Maximum radial force	N	670	1420		
Maximum axial force	N	550	1250		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	2.2	4.7		1
		2.5	5.3		2
		2.8	5.3		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

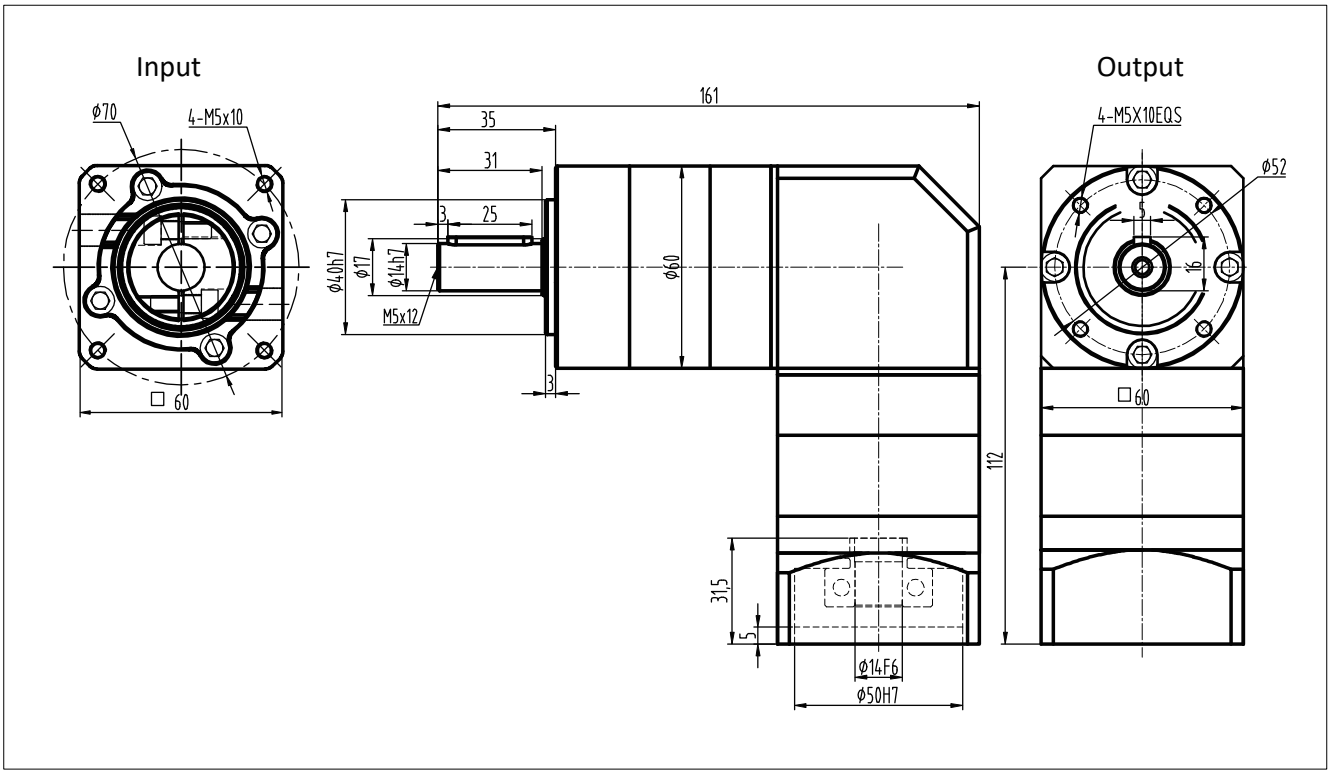
Model	Unit	NZPLE060	NZPLE080	Ratio	Stage
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50	
		0.091	0.283	70	
		0.092	0.291	64	3
		0.092	0.291	80	
		0.094	0.291	100	
		0.092	0.291	125	
		0.092	0.285 (0.285)	140(160)	
		0.091	0.285	175	
		0.091	0.283	200	
		0.091	0.283	250	
		0.091	0.283	280	
		0.091	0.283	350	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

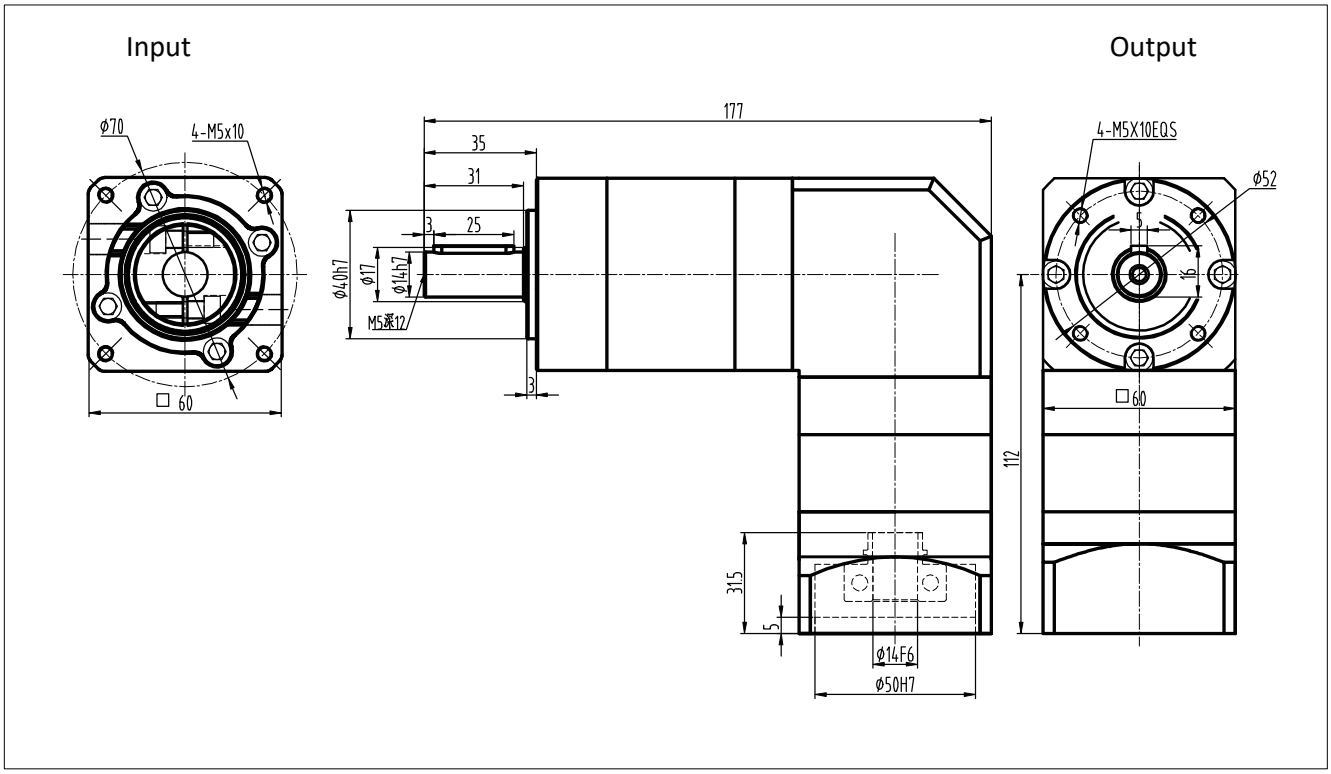
NZPLE060-L1 External dimensions



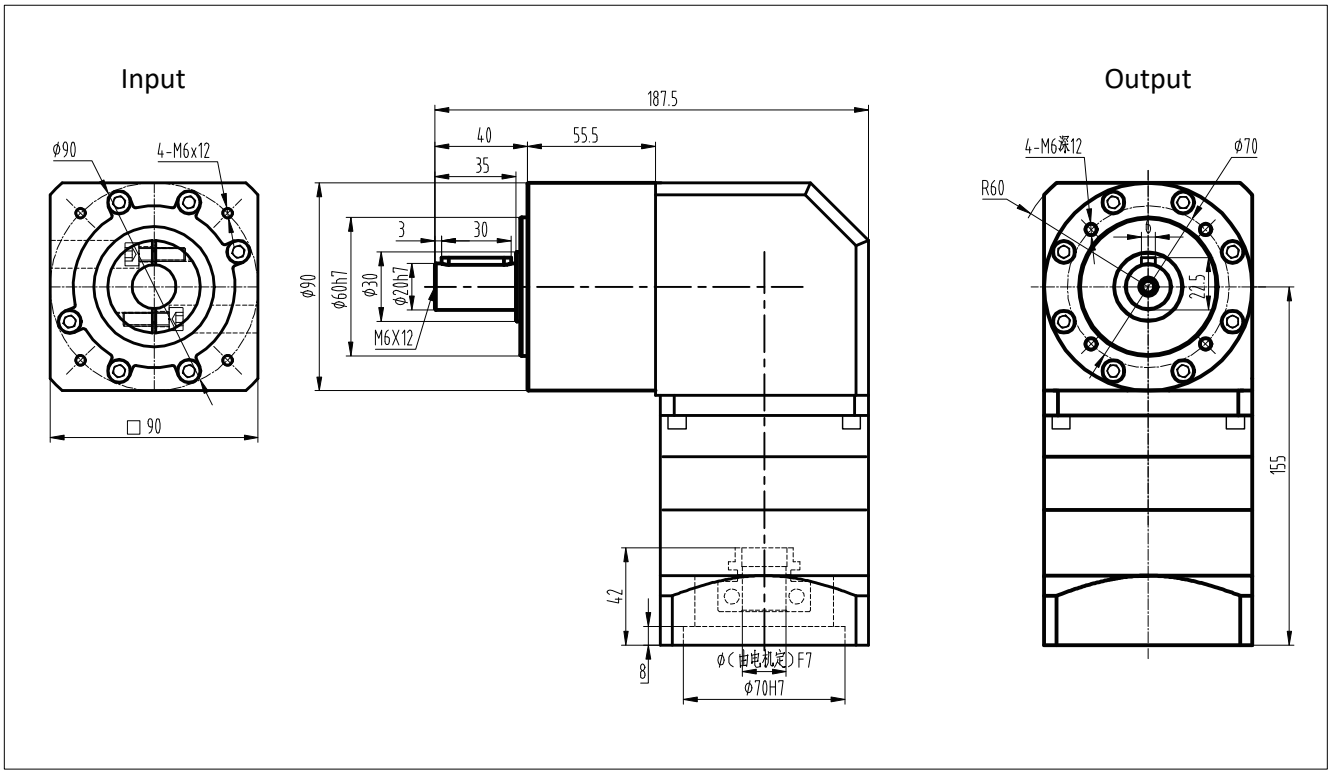
NZPLE060-L2 External dimensions



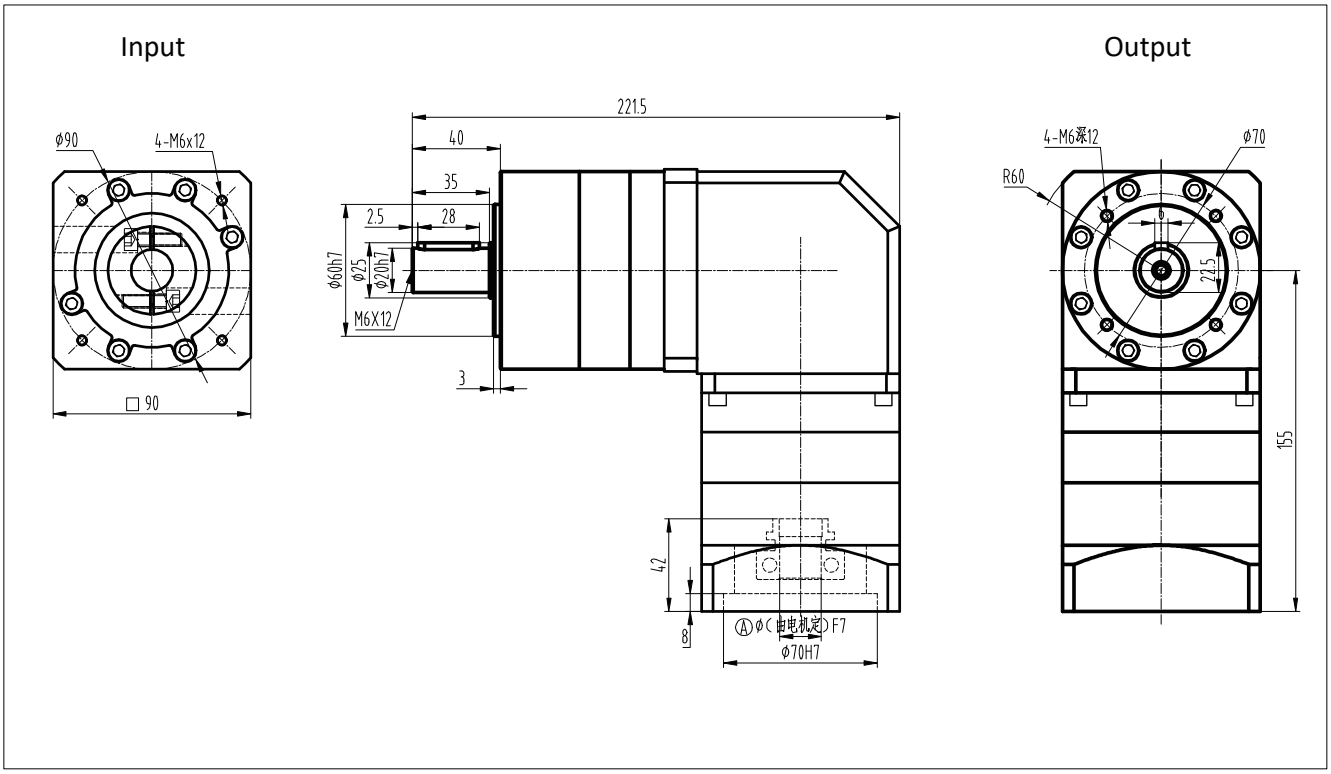
NZPLE060-L3 External dimensions



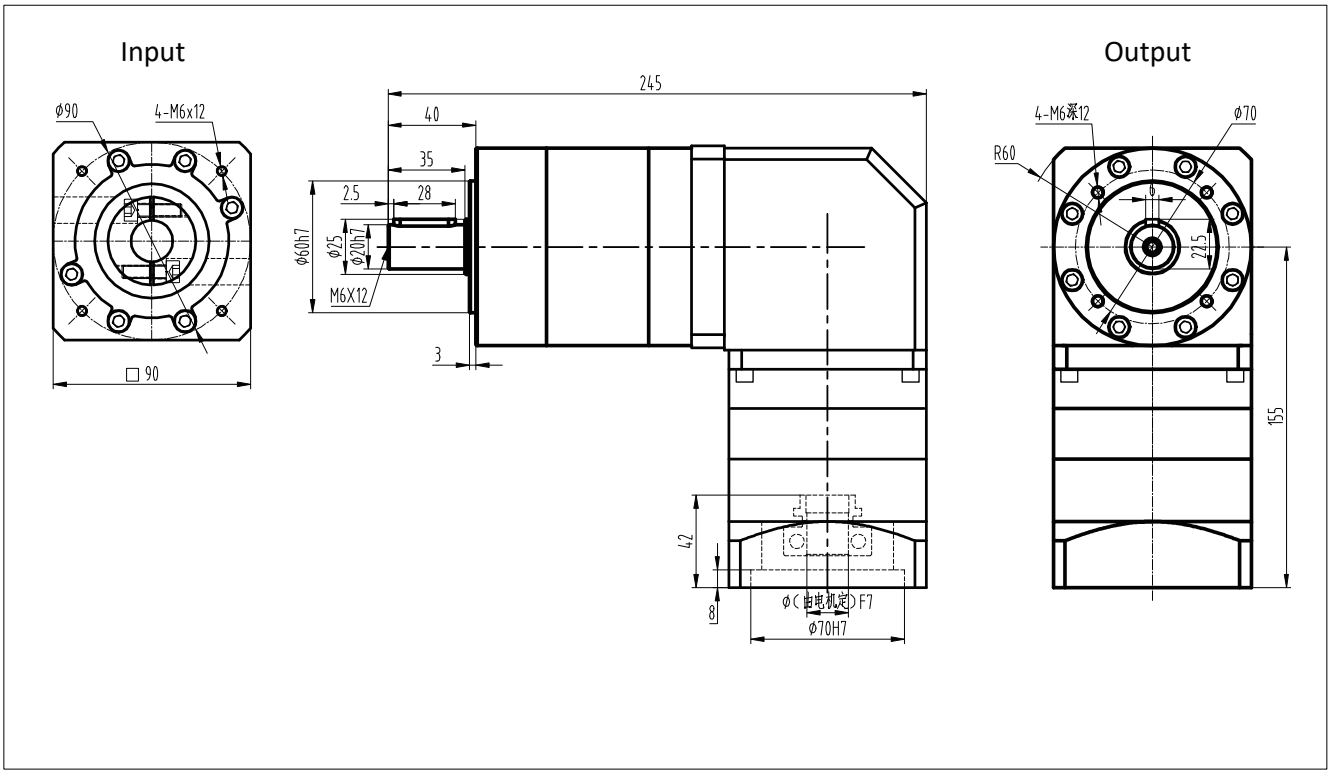
NZPLE080-L1 External dimensions



NZPLE080-L2 External dimensions



NZPLE080-L3 External dimensions



NZPLF Servo Right-Angle Flange Planetary Gear Reducer

Product name

Example：NZPLF 040 - L1 - (3) - 13 - 002 - YT - 8

Performance parameters of the reducer

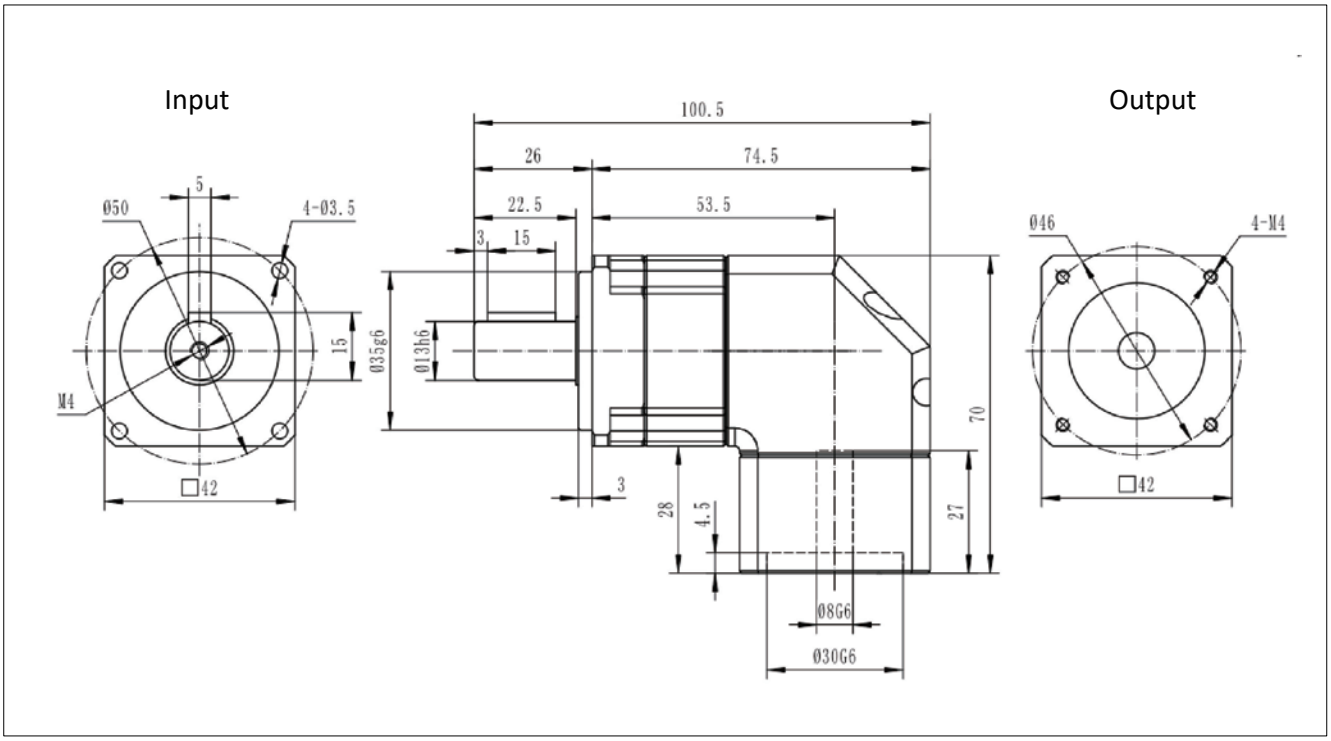
Model	Unit	NZPLF040	NZPLF060	NZPLF080	Ratio	Stage
Rated output torque	N·m	-	16.5	60	3	1
		13	27	86	4	
		15	27	94.5	5	
		12 (9.0)	19.5	64	7 (9)	
		9.0	8.5	39.5	10	
		-	-	96	12	2
		-	-	96	15	
		13	30	96	16	
		15	30	96	20	
		15	33	105.5	25	
		13	30	96	28	
		15	33	105.5	35	
		13	30	96	40	
		15	33	105.5	50	
		12 (9)	21.5	71.5	70 (100)	
		-	37.5	120	64	3
		-	37.5	120	80	
		-	37.5	120	100	
		-	41	132	125	
		-	37.5	120(120)	140(160)	
		-	41	132	175	
		-	37.5	120	200	
		-	41	132	250	
		-	37.5	120	280	
		-	41	132	350	
Emergency stop torque	N·m	2 times Rated output torque				
Norminal input speed	rmp	4000	4000	3000		
Maximum input speed	rmp	8000	8000	6000		
Maximum radial force	N	185	670	1420		
Maximum axial force	N	150	550	1250		
Efficiency	%	＞90%				
Average lifetime	h	20000				
Weight	kg	0.5	2.2	4.7		1
		0.6	2.5	5.3		2
		0.7	2.8	5.3		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

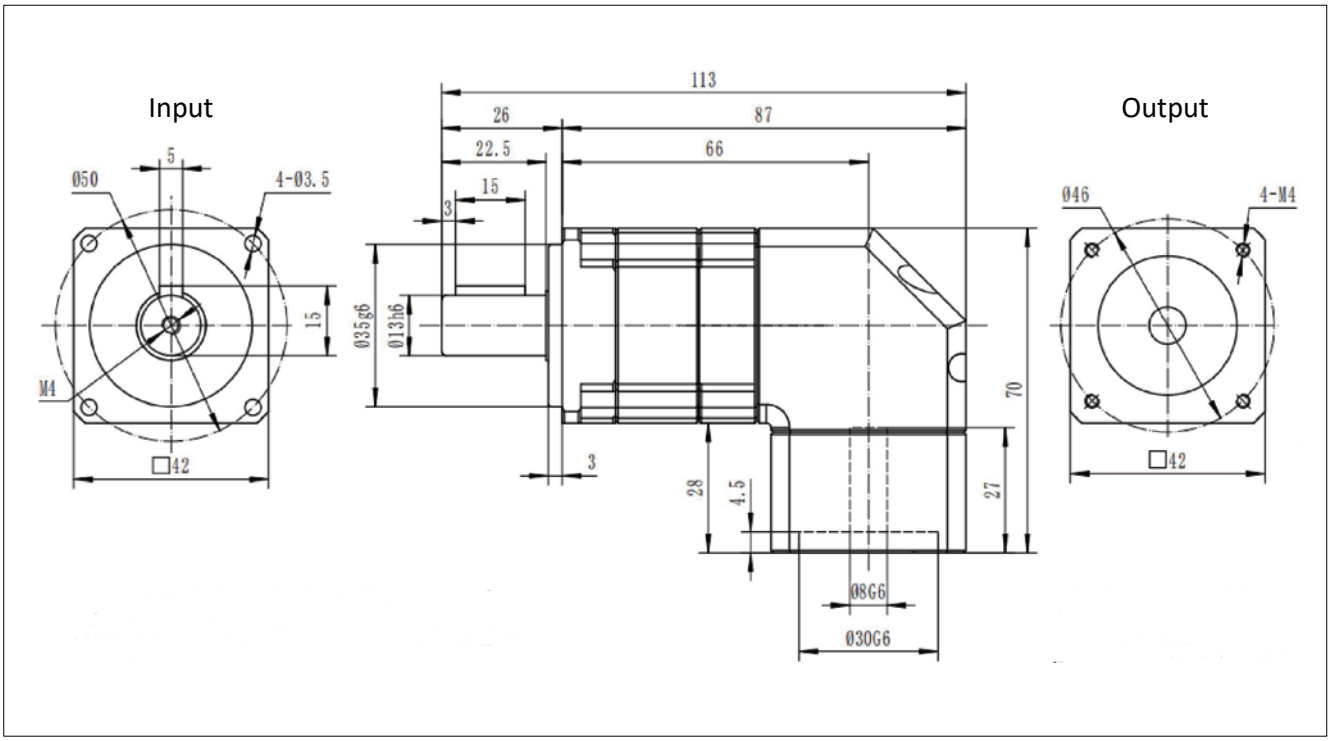
Model	Unit	NZPLF040	NZPLF060	NZPLF080	Ratio	Stage
Moment of inertia	$kgcm^2$	-	0.107	0.400	3	1
		-	0.094	0.309	4	
		-	0.092	0.291	5	
		-	0.091	0.285	7 (9)	
		-	0.091	0.283	10	
		-	-	0.400	12	2
		-	-	0.400	15	
		-	0.094	0.309	16	
		-	0.092	0.291	20	
		-	0.092	0.291	25	
		-	0.091	0.285	28	
		-	0.091	0.285	35	
		-	0.091	0.283	40	
		-	0.091	0.283	50	
		-	0.091	0.283	70	
		-	-	0.291	64	3
		-	-	0.291	80	
		-	0.094	0.291	100	
		-	0.092	0.291	125	
		-	0.092	0.285	140(160)	
		-	0.091	0.285	175	
		-	0.091	0.283	200	
		-	0.091	0.283	250	
		-	0.091	0.283	280	
		-	0.091	0.283	350	
Noise	dB	60	60	65		
Lubricating		Synthetic grease lubrication				
levels of protection		IP54				

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

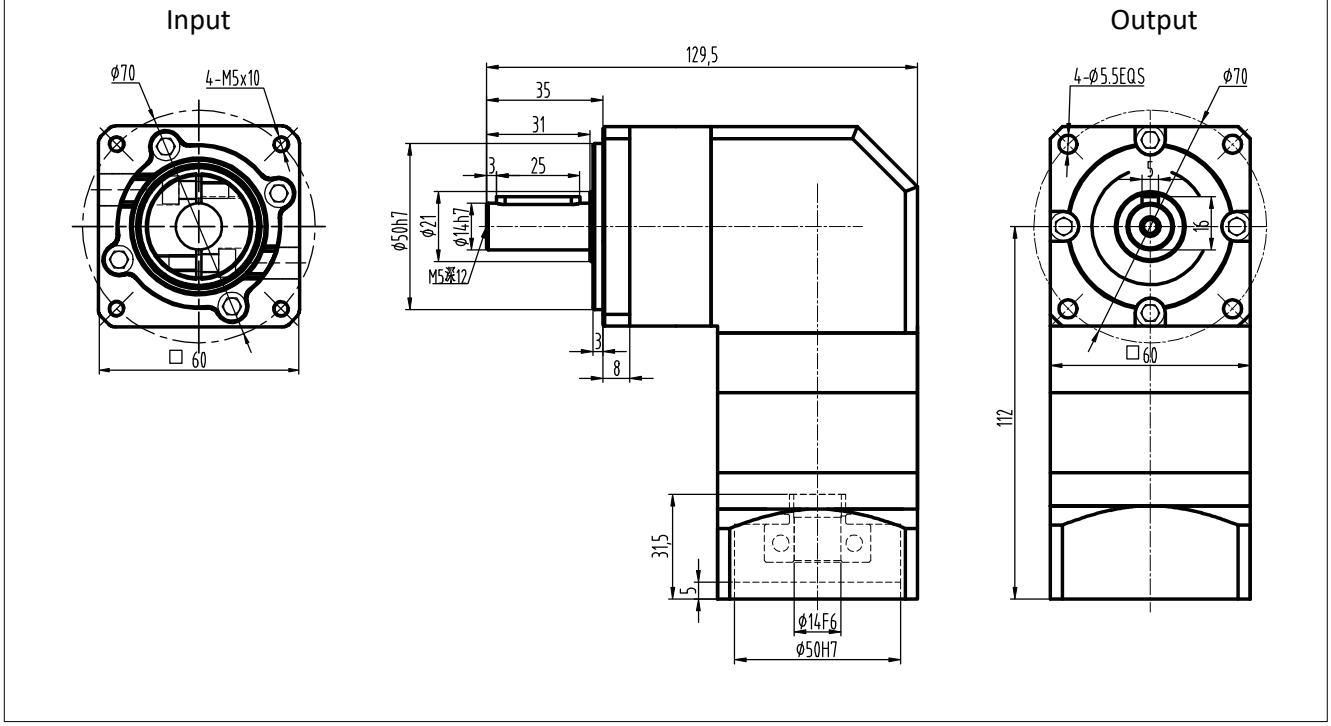
NZPLF040-L1 External dimensions



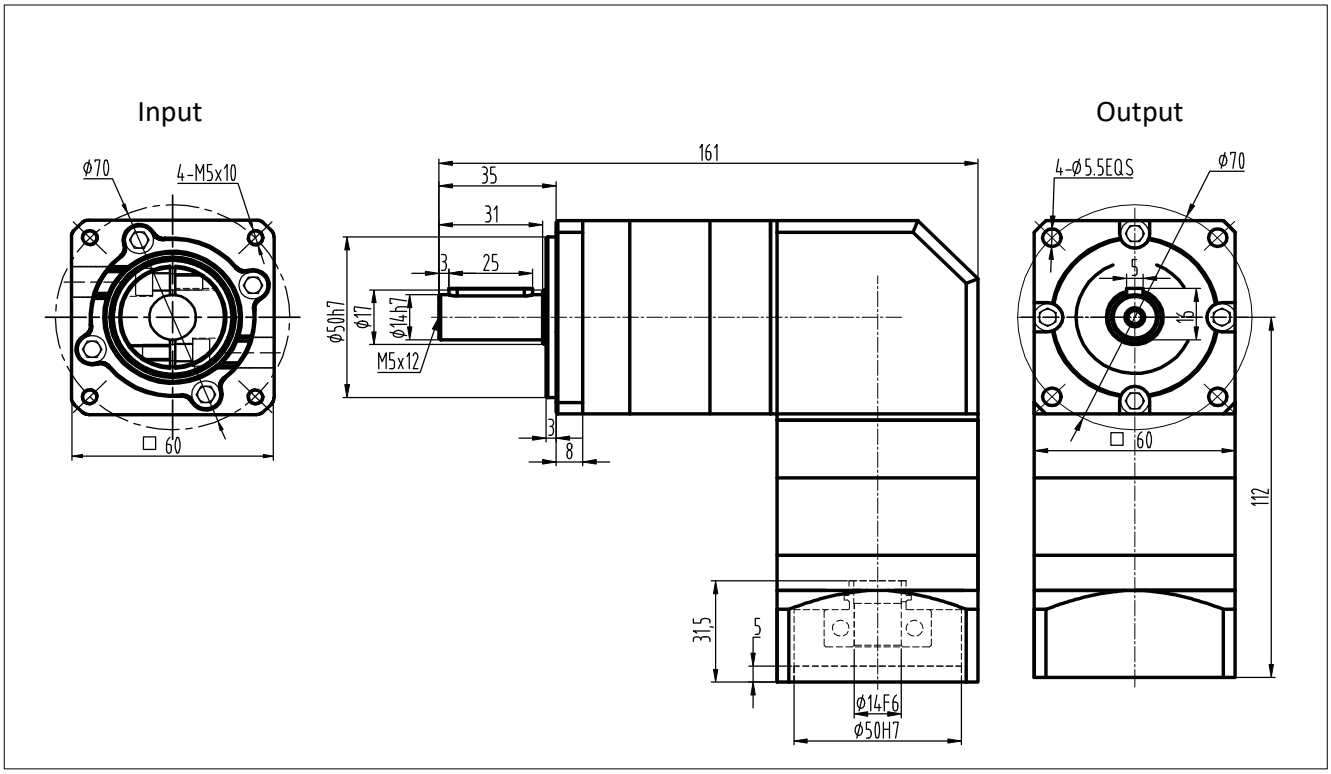
NZPLF040-L2 External dimensions



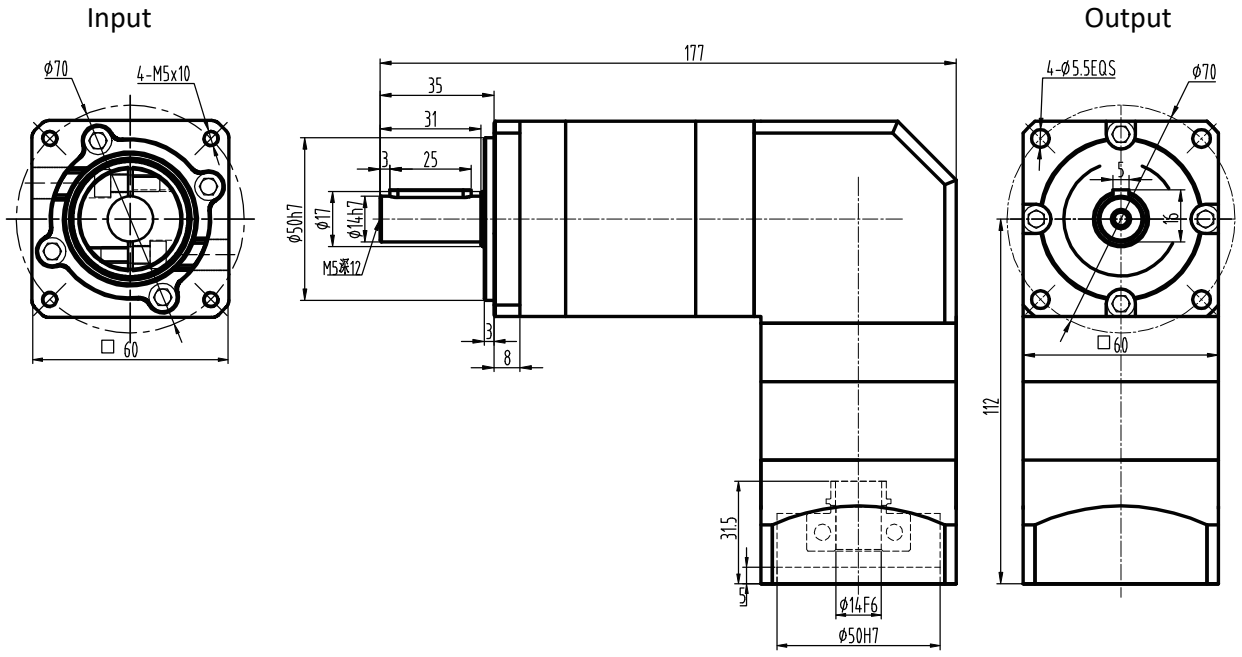
NZPLF060-L1 External dimensions



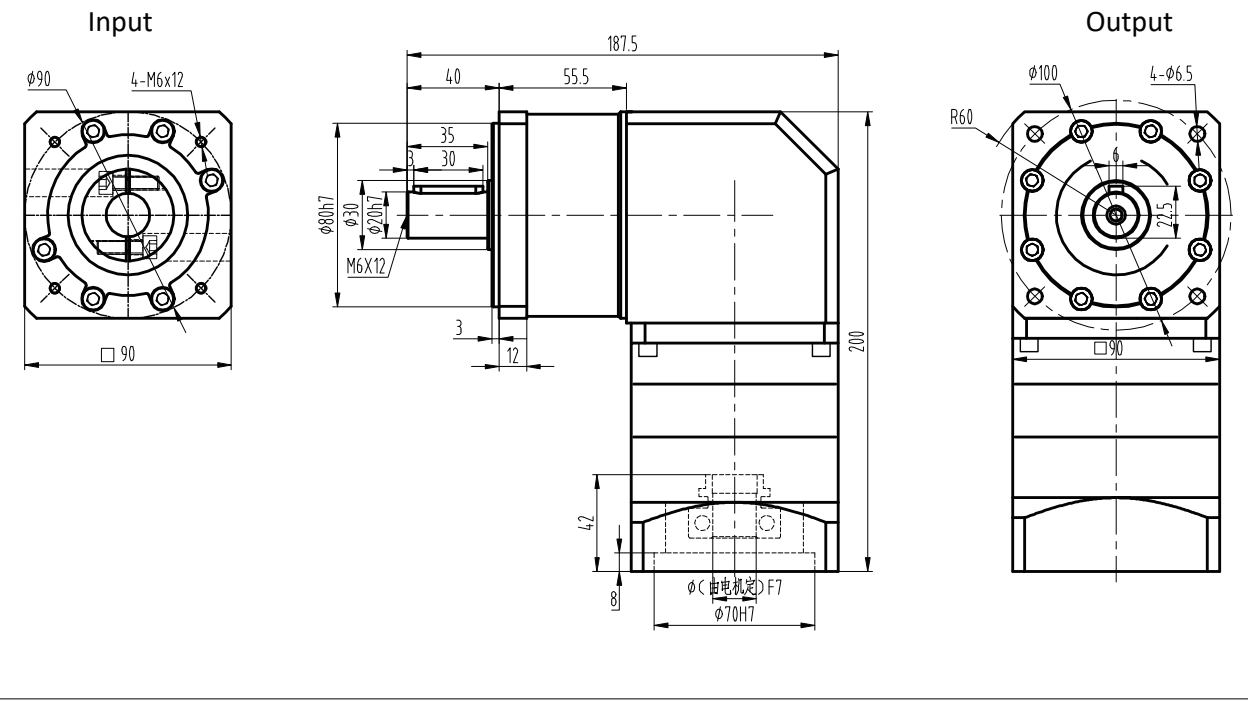
NZPLF060-L2 External dimensions



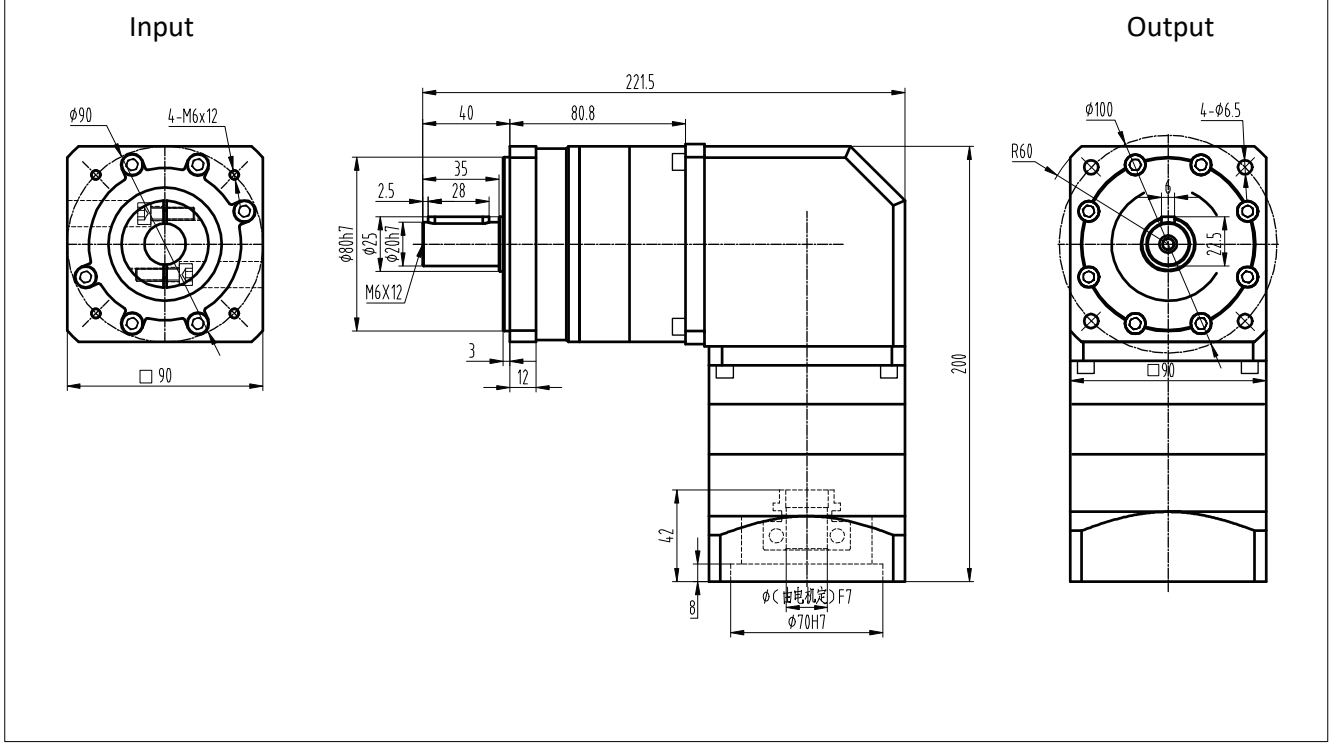
NZPLF060-L3 External dimensions



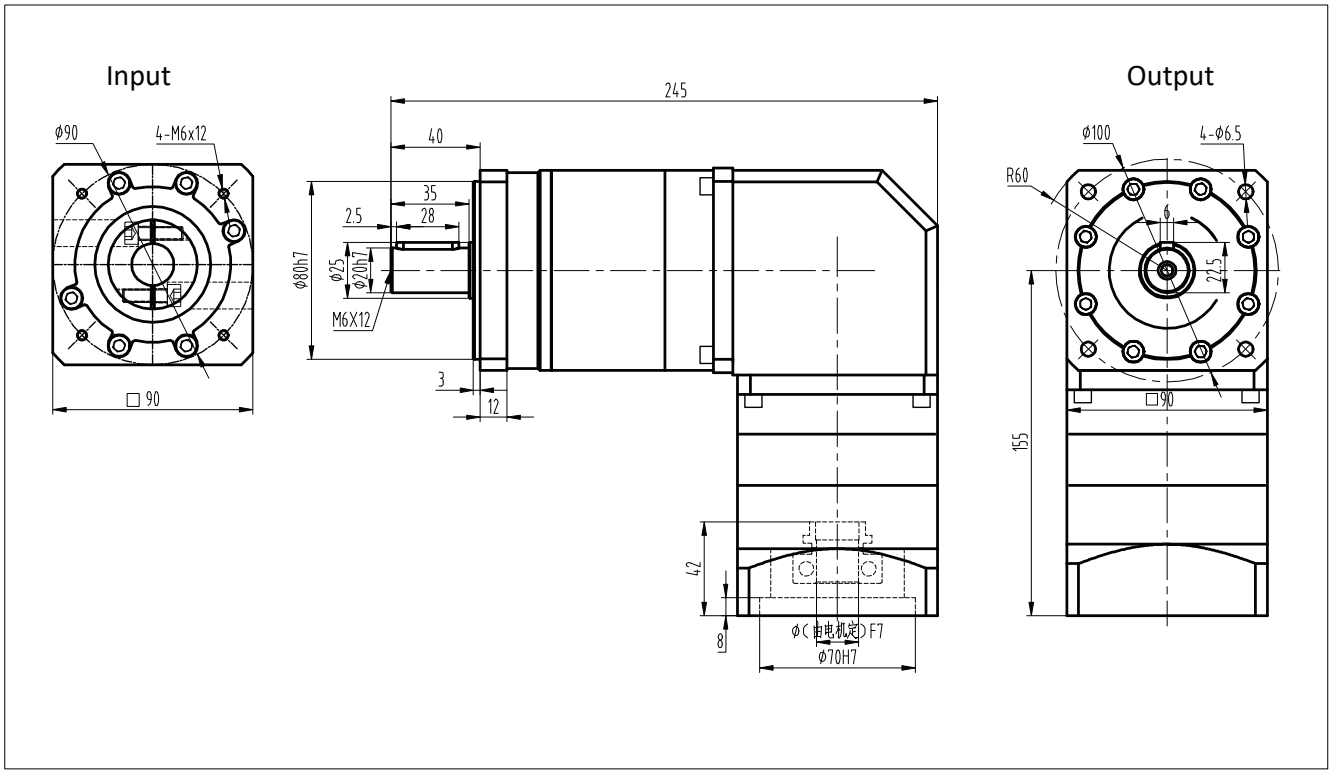
NZPLF080-L1 External dimensions



NZPLF080-L2 External dimensions



NZPLF080-L3 External dimensions



NPLFK Servo Flange Hollow Shaft Planetary Gearbox

Product name

Example：NPLFK 060 - L1 - (3) - 10 - 002 - YT - 14

Performance parameters of the reducer

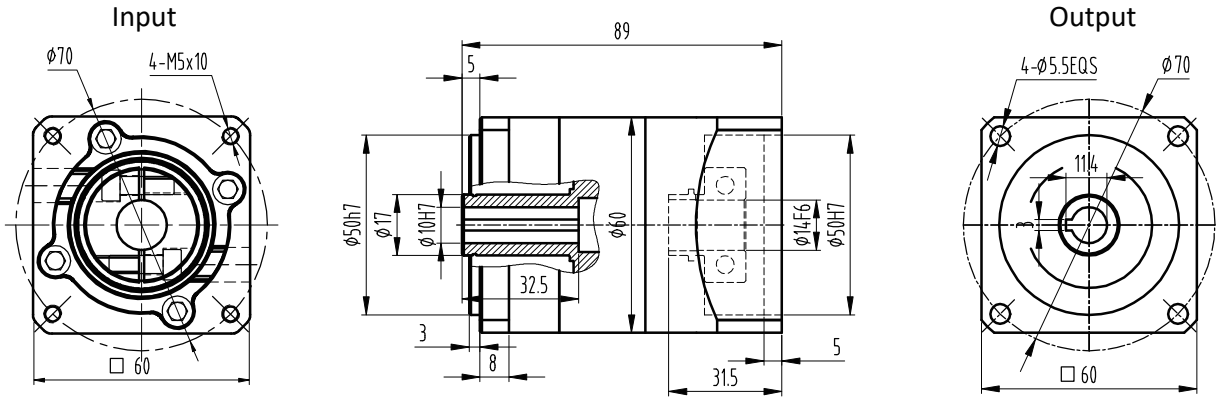
Model	Unit	NPLFK060	NPLFK080	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28	
		33	105.5	35	
		30	96	40	
		33	105.5	50	
		21.5	71.5	70	
		37.5	120	64	3
		37.5	120	80	
		37.5	120	100	
		41	132	125	
		37.5	120 (120)	140(160)	
		41	132	175	
		37.5	120	200	
		41	132	250	
		37.5	120	280	
		41	132	350	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	4000	3000		
Maximum input speed	rmp	8000	6000		
Maximum radial force	N	670	1420		
Maximum axial force	N	550	1250		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	1.0	2.8		1
		1.3	3.4		2
		1.6	4.0		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

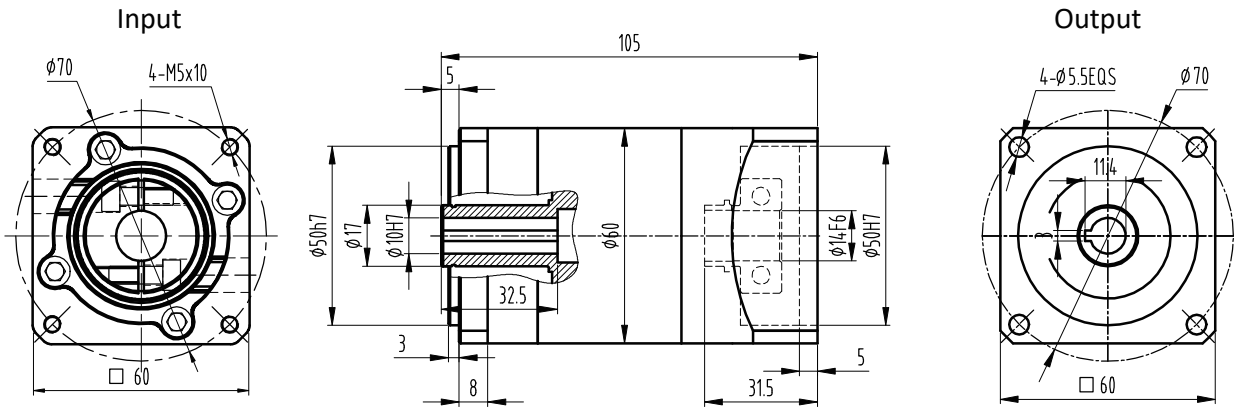
Model	Unit	NPLFK060	NPLFK080	Ratio	Stage
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50	
		0.091	0.283	70	
		-	0.291	64	3
		-	0.291	80	
		0.094	0.291	100	
		0.092	0.291	125	
		0.092	0.285 (0.285)	140(160)	
		0.091	0.285	175	
		0.091	0.283	200	
		0.091	0.283	250	
		0.091	0.283	280	
		0.091	0.283	350	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

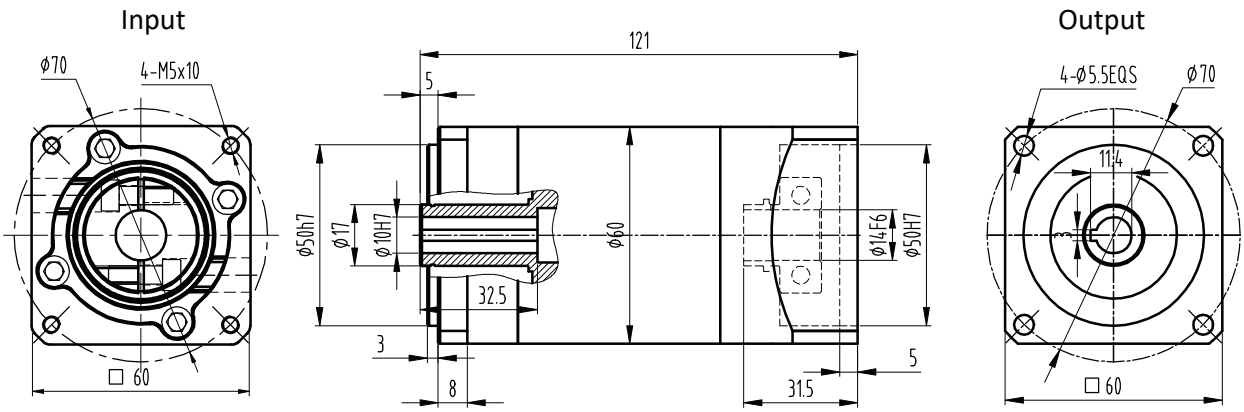
NPLFK060-L1 External dimensions



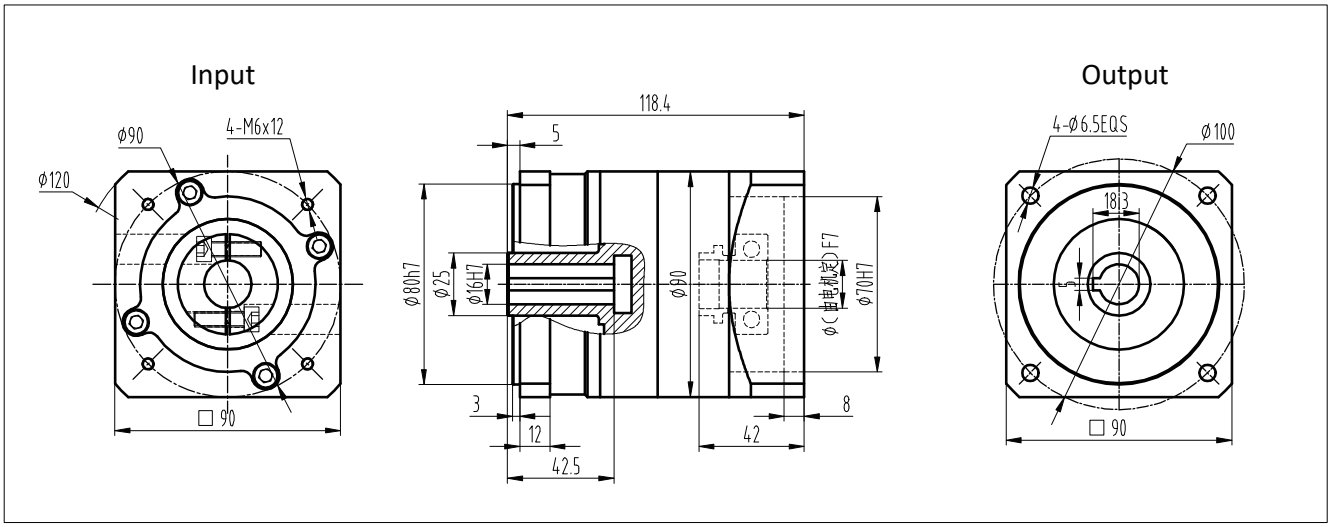
NPLFK060-L2 External dimensions



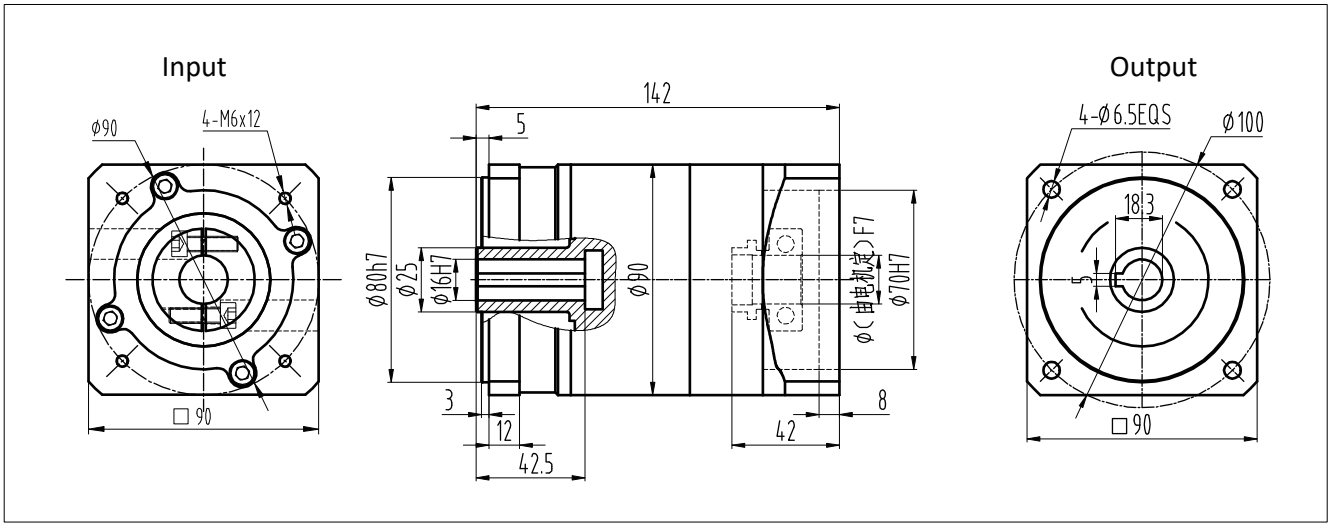
NPLFK060-L3 External dimensions



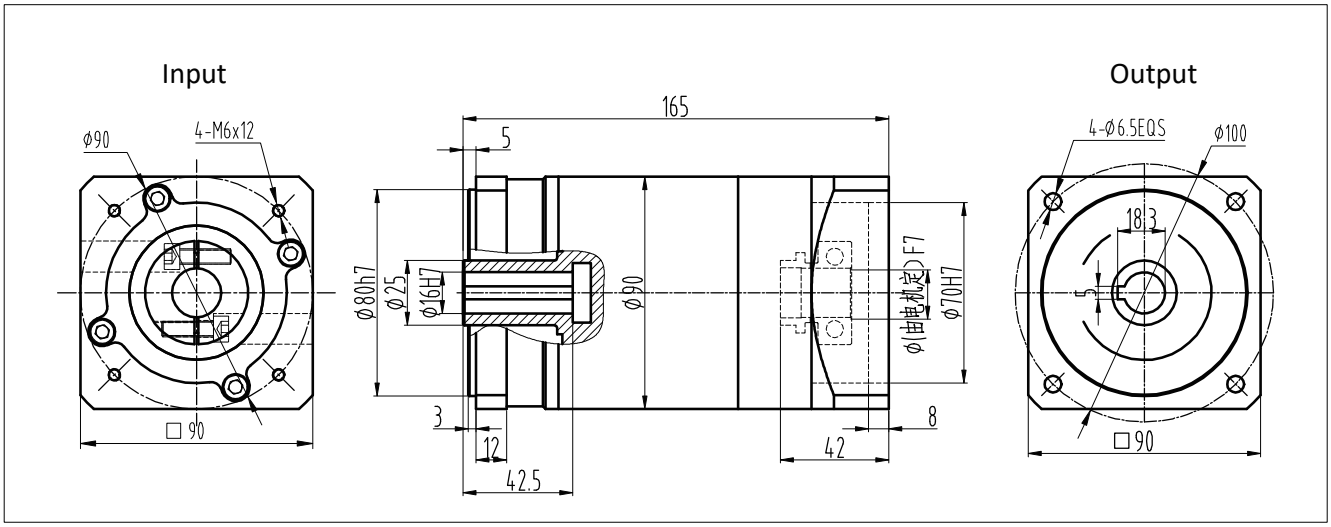
NPLFK080-L1 External dimensions



NPLFK080-L2 External dimensions



NPLFK080-L3 External dimensions



NZPLFK Servo Right-Angle Flange Hollow Shaft Planetary Gearbox

Product name

Example：NZPLFK 060 - L1 - (3) - 10 - 002 - YT - 14

Performance parameters of the reducer

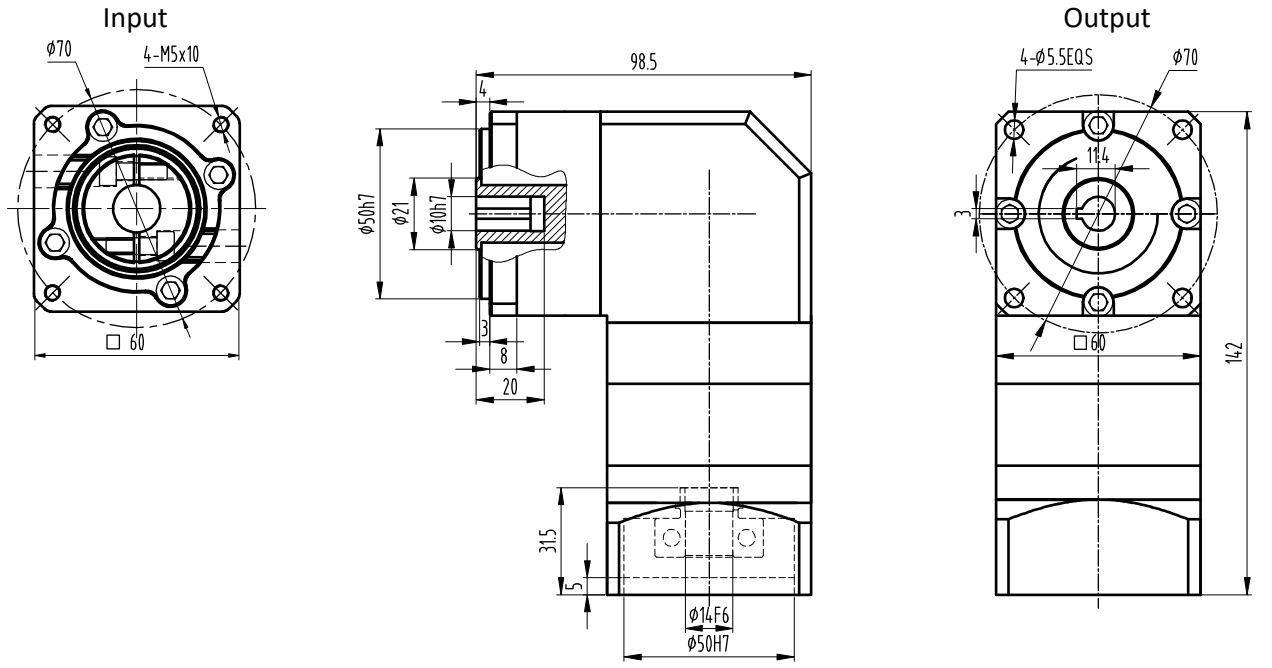
Model	Unit	NZPLFK060	NZPLFK080	Ratio	Stage
Rated output torque	N·m	16.5	60	3	1
		27	86	4	
		27	94.5	5	
		19.5	64	7	
		8.5	39.5	10	
		-	96	12	2
		-	96	15	
		30	96	16	
		30	96	20	
		33	105.5	25	
		30	96	28	
		33	105.5	35	
		30	96	40	
		33	105.5	50	
		21.5	71.5	70	
		37.5	120	64	3
		37.5	120	80	
		37.5	120	100	
		41	132	125	
		37.5	120 (120)	140(160)	
		41	132	175	
		37.5	120	200	
		41	132	250	
		37.5	120	280	
		41	132	350	
Emergency stop torque	N·m	2 times Rated output torque			
Norminal input speed	rmp	3000	3500		
Maximum input speed	rmp	8000	6000		
Maximum radial force	N	670	1420		
Maximum axial force	N	550	1250		
Efficiency	%	＞90%			
Average lifetime	h	20000			
Weight	kg	2.2	4.7		1
		2.5	5.3		2
		2.8	5.3		3

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

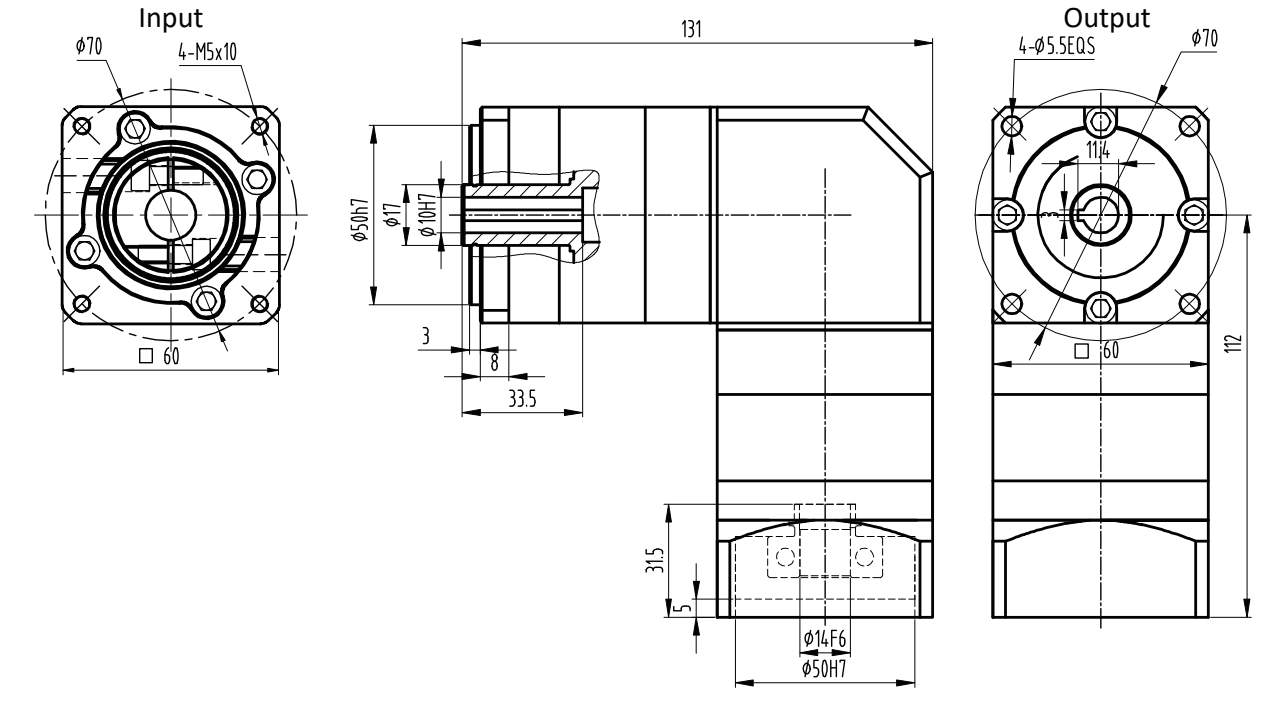
Model	Unit	NZPLFK060	NZPLFK080	Ratio	Stage
Moment of inertia	$kgcm^2$	0.107	0.400	3	1
		0.094	0.309	4	
		0.092	0.291	5	
		0.091	0.285	7	
		0.091	0.283	10	
		-	0.400	12	2
		-	0.400	15	
		0.094	0.309	16	
		0.092	0.291	20	
		0.092	0.291	25	
		0.091	0.285	28	
		0.091	0.285	35	
		0.091	0.283	40	
		0.091	0.283	50	
		0.091	0.283	70	
		-	0.291	64	3
		-	0.291	80	
		0.094	0.291	100	
		0.092	0.291	125	
		0.092	0.285 (0.285)	140(160)	
		0.091	0.285	175	
		0.091	0.283	200	
		0.091	0.283	250	
		0.091	0.283	280	
		0.091	0.283	350	
Noise	dB	60	65		
Lubricating		Synthetic grease lubrication			
levels of protection		IP54			

Note: "-" indicates that the reduction ratio has no parameters; The reduction ratio within () corresponds to the relevant parameters of ()

NZPLFK060-L1 External dimensions



NZPLFK060-L2 External dimensions



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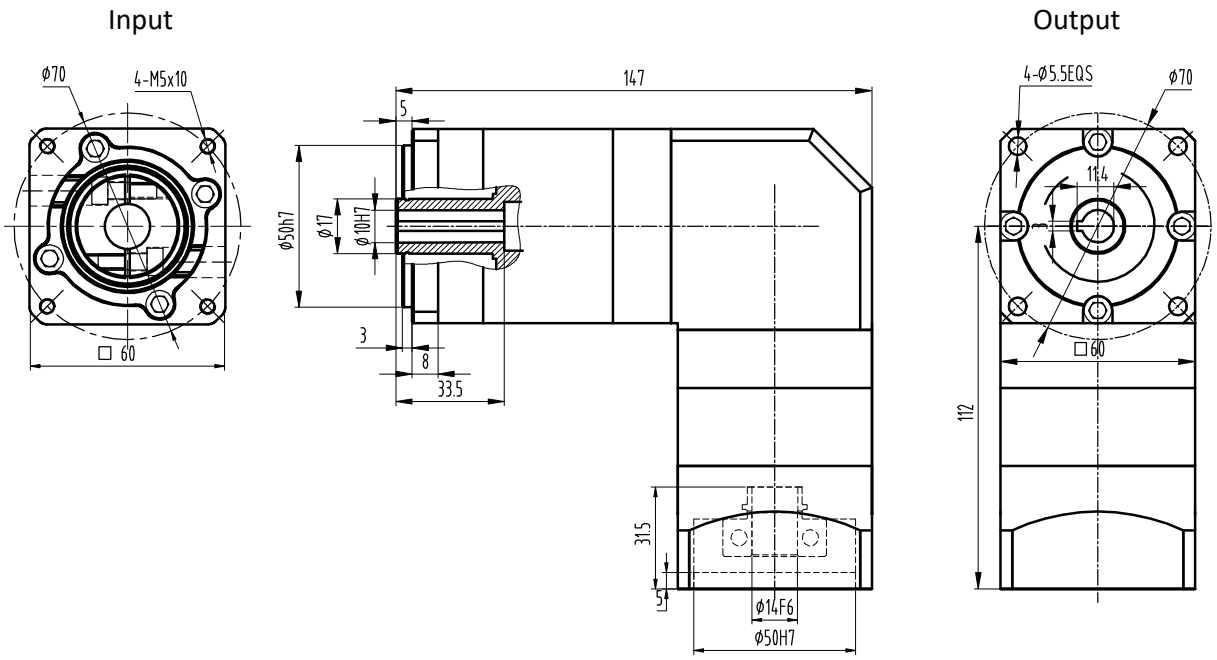

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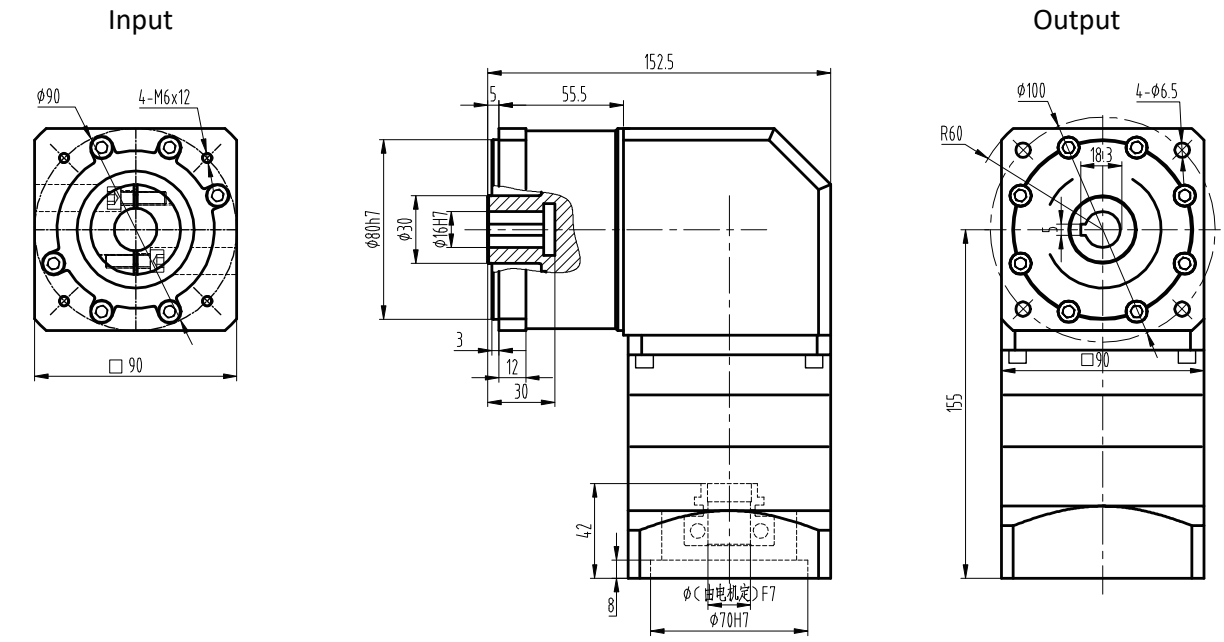

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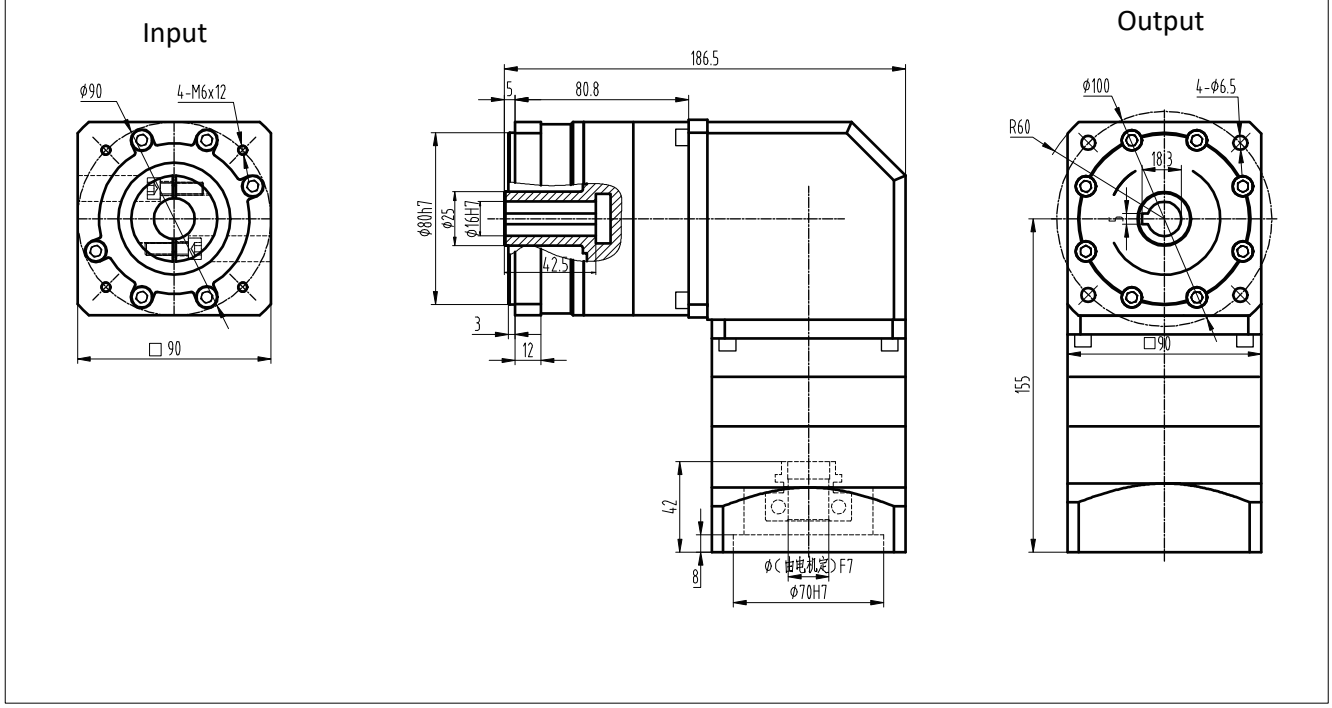

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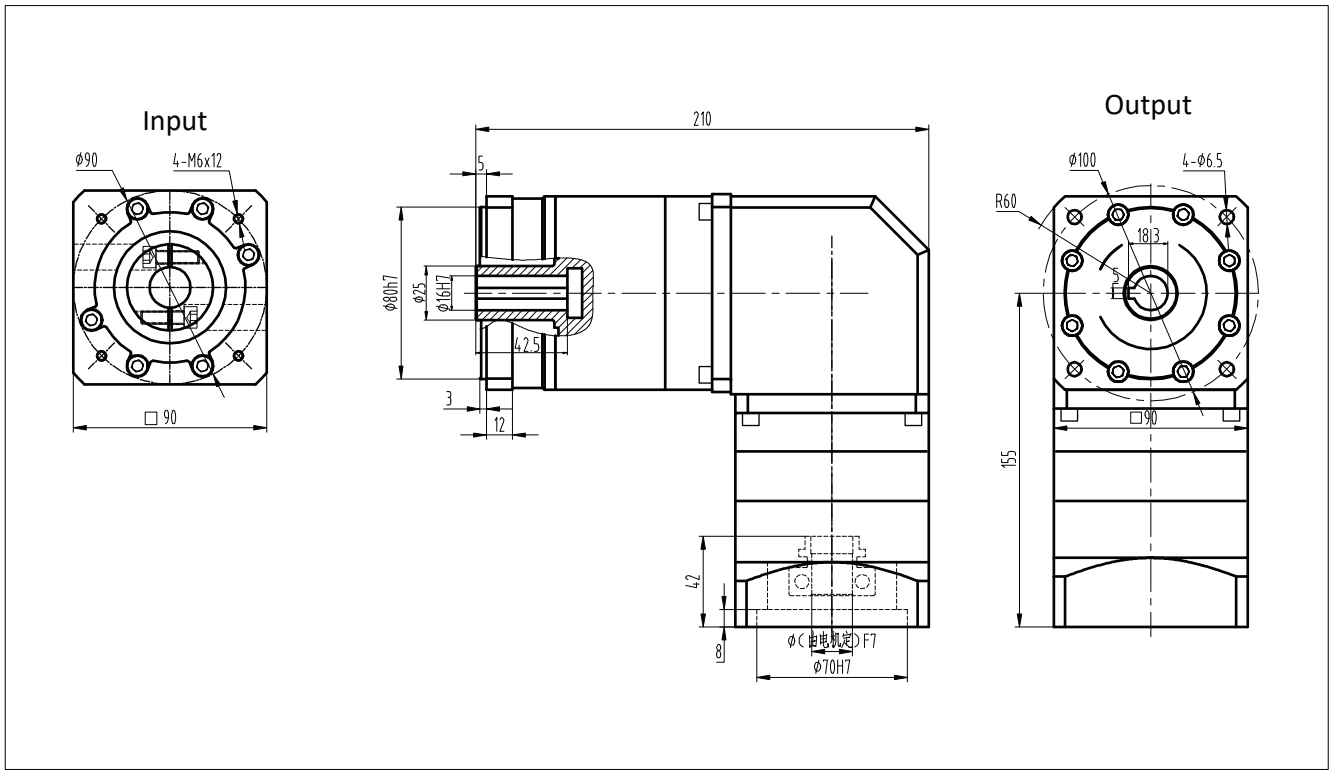

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