

motion.ml



NF SERIES

High precision planetary reducer



NF series

We provide customers with high-precision, high rigidity, high torque precision planetary reducer.



NF series assembly (cutting)

3 Monoblock housing design

Higher precision
Ultimate tensile strength
Higher torsional stiffness

2 High precise bearings

Ensuring a higher radial and axial load acceptance

1 High performance oil seal

Increased efficiency due to lowered friction
IP65 enclosure enables continuous duty operation up to 90 °C

4 Helical gear

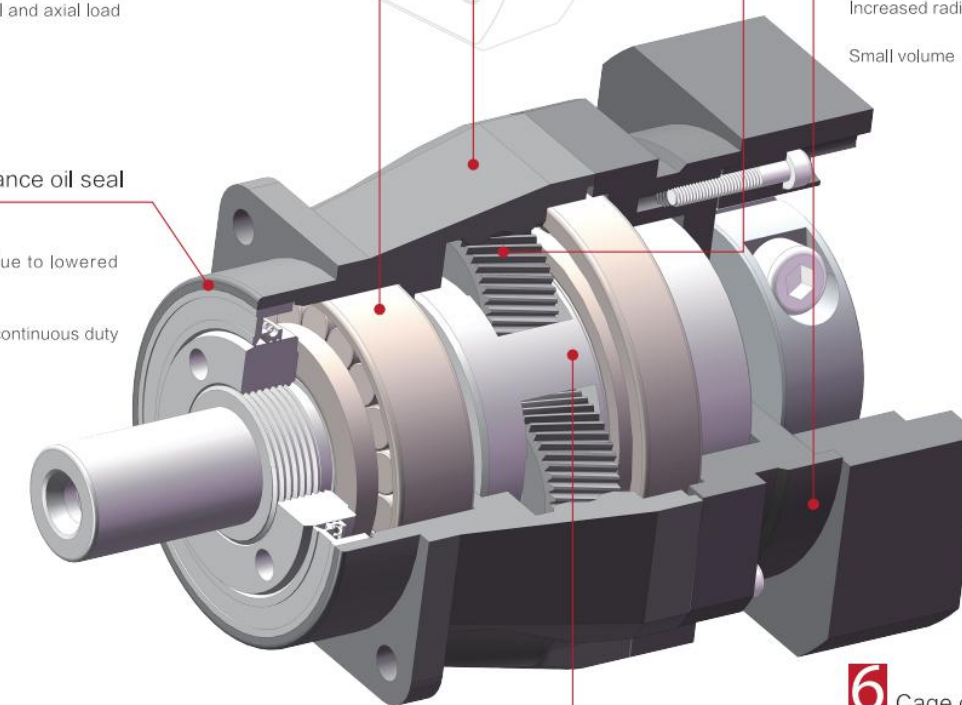
Optimized power transmission
Low noise
Improved precision

5 Rear cover

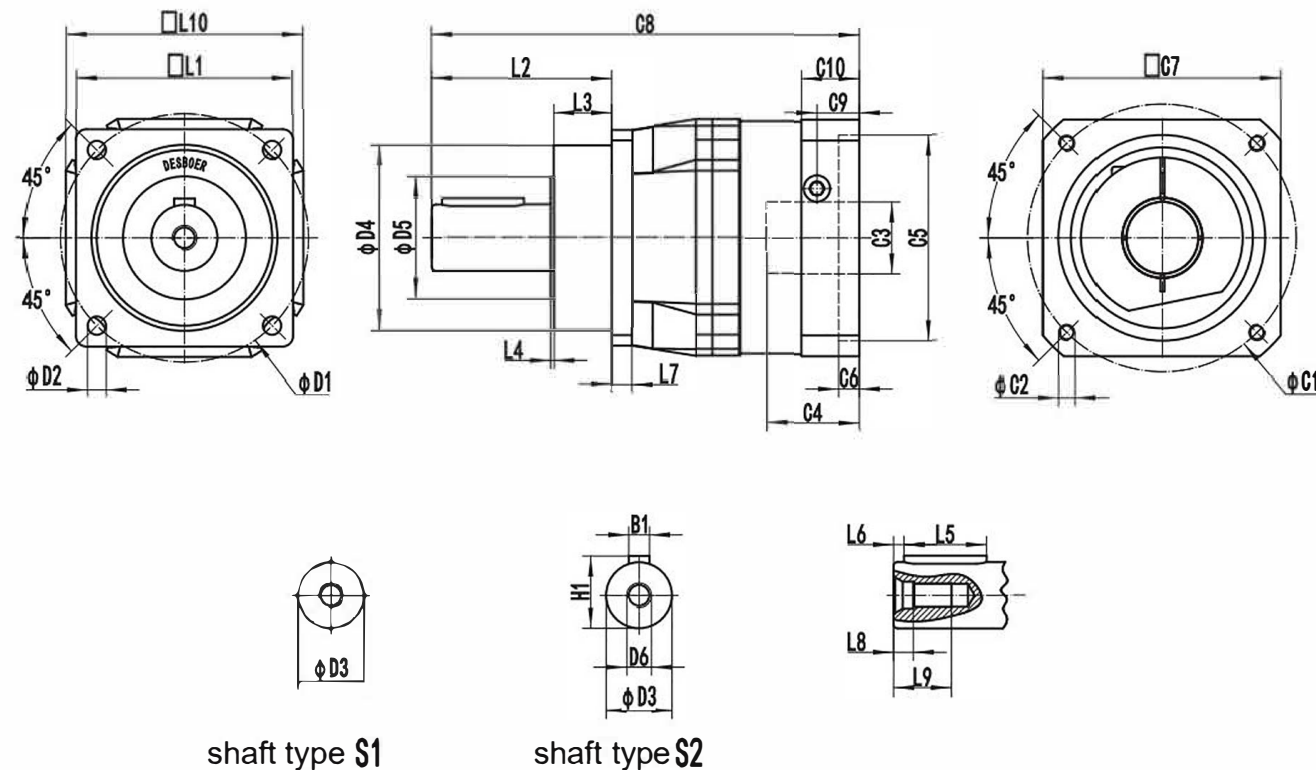
Increased radial load capacity
Small volume

6 Cage designed shaft

High torsional stiffness
Optimized power transmission



NF075 Series



(Unit: mm)

NF075	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	85	6.8	22	70	50	M8 × 1.25P	76	56	17	2.3	32	3	7	6

NF075	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	20	90	100	M6 × 1P	≤ 19/≤ 24	43.5	80	10	90	165	18	24.5	6	24.5

*Dimensions based on servo-motor, please contact us for custom made order.

Parameter

Gearbox performance data

Segment number		Single segment							
Ratio	i	3	4	5	6	7	8	9	10
Rated output torque	Nm	120	130	150	140	130	110	95	95
Emergency stop torque	Nm	Three times of Maximum Output Torque							
Rated input speed	rpm	4000							
Max input speed	rpm	8000							
Ultraprecise backlash	arcmin	≤ 1							
Precise backlash	arcmin	≤ 3							
Standard backlash	arcmin	≤ 5							
Torsional rigidity	Nm/arcmin	14							
Max. radial Force	N	4100							
Max. axial Force	N	3700							
Service Life	hr	30000 (15000 under continuous operation)							
Efficiency	%	≥ 97%							
Weight	kg	3.7							
Operating Temperature	°C	-10°C ~ +90°C							
Lubrication		Synthetic grease							
Protection Class		IP64							
Mounting Position		All directions							
Noise Level (N1=3000rpm, Non-Loaded)	dB (A)	≤ 60							
Rotary inertia	Kg · cm ²	0.61	0.48	0.47	0.45	0.45	0.44	0.44	0.44

★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$

▲ Measured in the shaft center when the output speed is 100rpm

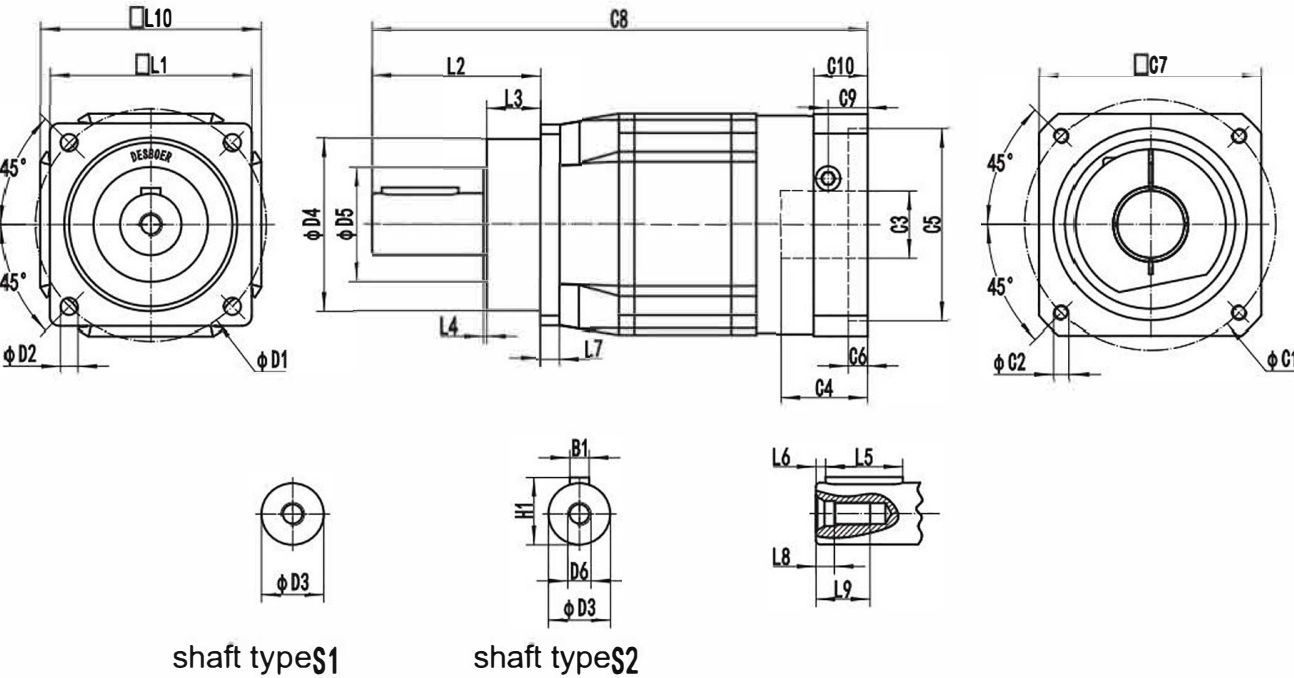
NF075A Series

Parameter

Gearbox
 performance data

Segment number		Double segment												
Ratio	i	15	20	25	30	35	40	45	50	60	70	80	90	100
Rated output torque	Nm	120	130	150	140	130	110	95	150	140	130	110	95	95
Emergency stop torque	Nm	Three times of Maximum Output Torque												
Rated input speed	rpm	4000												
Max input speed	rpm	8000												
Ultraprecise backlash	arcmin	—												
Precise backlash	arcmin	≤5												
Standard backlash	arcmin	≤7												
Torsional rigidity	Nm/arcmin	14												
Max. radial Force	N	4100												
Max. axial Force	N	3700												
Service Life	hr	30000 (15000 under continuous operation)												
Efficiency	%	≥94%												
Weight	kg	5.5												
Operating Temperature	℃	-10℃ ~ +90℃												
Lubrication		Synthetic grease												
Protection Class		IP64												
Mounting Position		All directions												
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤63												
Rotary inertia	Kg · cm ²	0.47						0.44						

★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
 ▲ Measured in the shaft center when the output speed is 100rpm



shaft typeS1 shaft typeS2

(Unit: mm)

NF075A	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	85	6.8	22	70	50	M8 × 1.25P	76	56	17	2.25	32	3	7	6

NF075A	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	20	90	100	M5 × 0.8P	≤ 19/≤ 24	47	80	10	90	210.5	18	24.5	6	24.5

*Dimensions based on servo-motor,please contact us for custom made order.

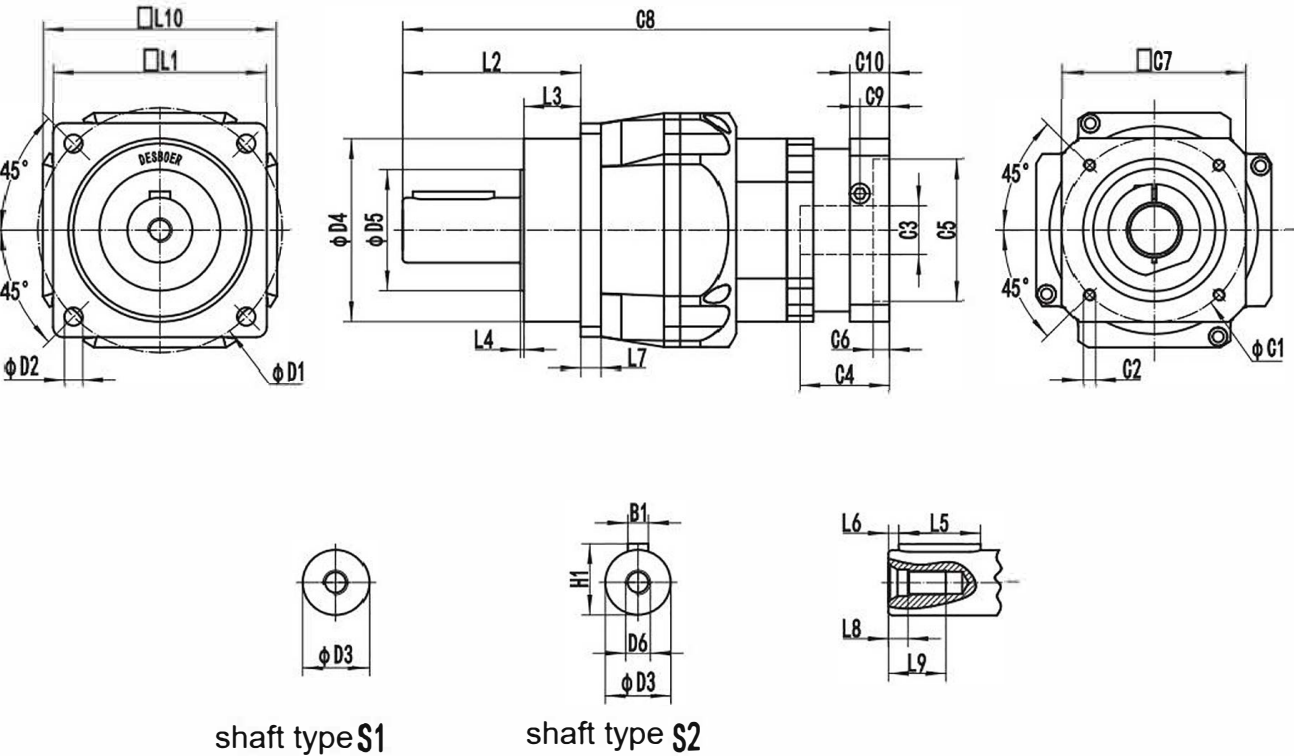
NF075 Series

Parameter

Gearbox
performance data

Segment number		Double segment												
Ratio	i	15	20	25	30	35	40	45	50	60	70	80	90	100
Rated output torque	Nm	120	130	150	140	130	110	95	150	140	130	110	95	95
Emergency stop torque	Nm	Three times of Maximum Output Torque												
Rated input speed	rpm	4000												
Max input speed	rpm	8000												
Ultraprecise backlash	arcmin	—												
Precise backlash	arcmin	≤5												
Standard backlash	arcmin	≤7												
Torsional rigidity	Nm/arcmin	14												
Max. radial Force	N	4100												
Max. axial Force	N	3700												
Service Life	hr	30000 (15000 under continuous operation)												
Efficiency	%	≥94%												
Weight	kg	4.1												
Operating Temperature	℃	-10℃ ~ +90℃												
Lubrication		Synthetic grease												
Protection Class		IP64												
Mounting Position		All directions												
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤60												
Rotary inertia	Kg · cm²	0.13												

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm



(Unit: mm)

NF075	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	85	6.8	22	70	50	M8 × 1.25P	76	56	17	2.25	32	3	7	6

NF075	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	20	90	70	M5 × 0.8P	≤ 14/≤ 16	36	50	8	60	199	13.5	24.5	6	24.5

*Dimensions based on servo-motor,please contact us for custom made order.

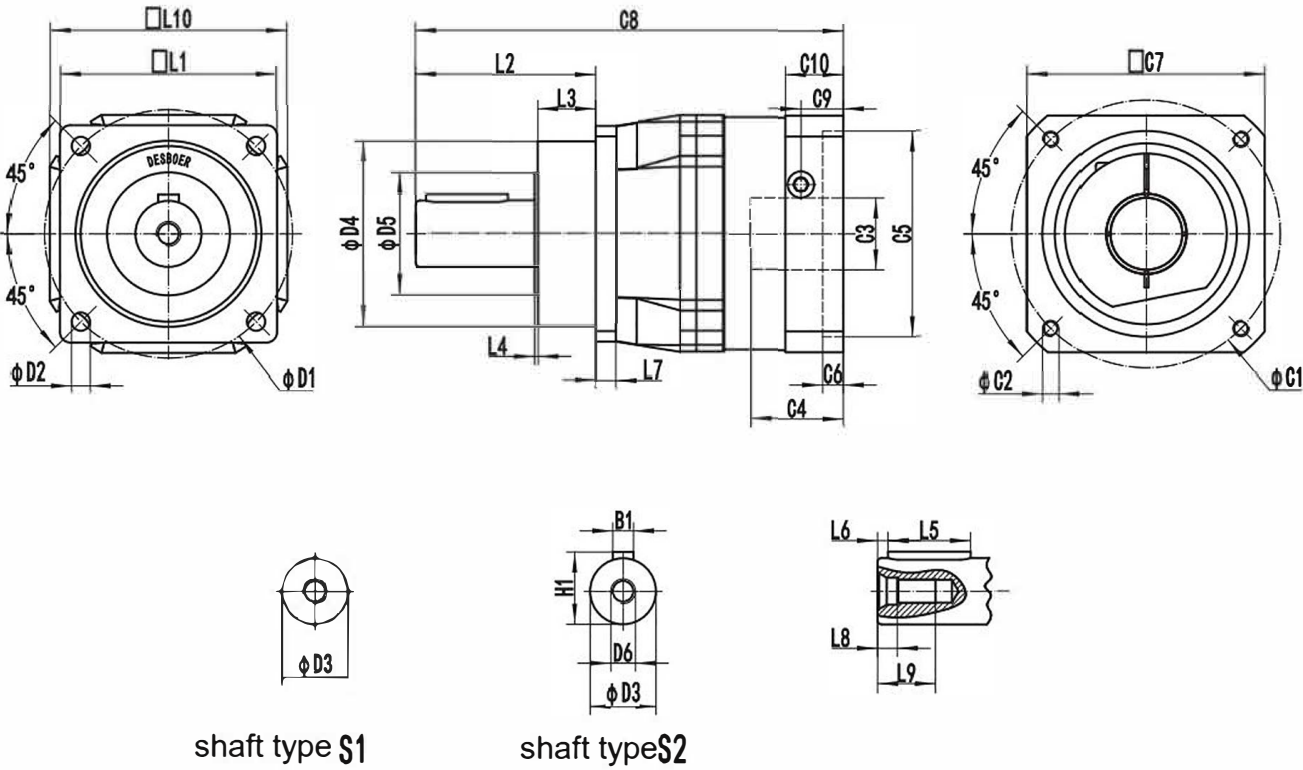
NF100 Series

Parameter

Gearbox performance data

Segment number		Single segment							
Ratio	i	3	4	5	6	7	8	9	10
Rated output torque	Nm	190	270	310	290	280	240	210	210
Emergency stop torque	Nm	Three times of Maximum Output Torque							
Rated input speed	rpm	4000							
Max input speed	rpm	8000							
Ultraprecise backlash	arcmin	≤1							
Precise backlash	arcmin	≤3							
Standard backlash	arcmin	≤5							
Torsional rigidity	Nm/arcmin	25							
Max. radial Force	N	9200							
Max. axial Force	N	5820							
Service Life	hr	30000 (15000 under continuous operation)							
Efficiency	%	≥97%							
Weight	kg	6.9							
Operating Temperature	℃	-10℃ ~ +90℃							
Lubrication		Synthetic grease							
Protection Class		IP64							
Mounting Position		All directions							
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤63							
Rotary inertia	Kg · cm²	3.25	2.74	2.71	2.65	2.62	2.58	2.57	2.57

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm



(Unit: mm)

NF100	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8
	120	9	32	90	59.5	M12×1.75P	105	87.7	28	1.7	40	5	10	9.5

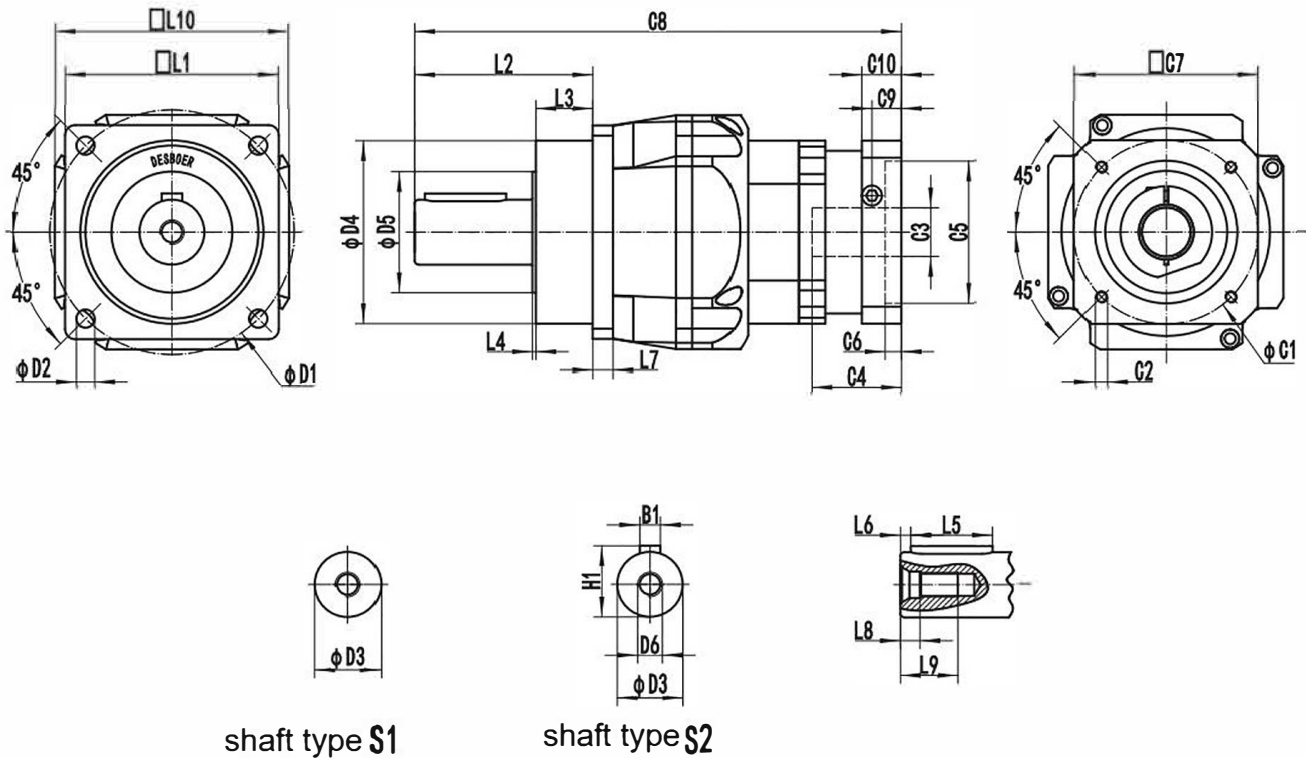
NF100	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	28	115	130	M8×1.25P	≤35	60.5	95	10	115	206	20.5	28	10	35

*Dimensions based on servo-motor,please contact us for custom made order.

NF100Series

Parameter

Gearbox
 performance data



(Unit: mm)

NF100	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8
	120	9	32	90	59.5	M12×1.75P	105	87.7	28	1.7	40	5	10	10

NF100	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	28	115	100	M6×1P	≤19/≤24	47	80	10	90	242	18	24.5	10	35

Segment number		Double segment												
Ratio	i	15	20	25	30	35	40	45	50	60	70	80	90	100
Rated output torque	Nm	190	270	310	290	280	240	210	310	290	280	240	210	210
Emergency stop torque	Nm	Three times of Maximum Output Torque												
Rated input speed	rpm	4000												
Max input speed	rpm	8000												
Ultraprecise backlash	arcmin	≤3												
Precise backlash	arcmin	≤5												
Standard backlash	arcmin	≤7												
Torsional rigidity	Nm/arcmin	25												
Max. radial Force	N	9200												
Max. axial Force	N	5820												
Service Life	hr	30000 (15000 under continuous operation)												
Efficiency	%	≥94%												
Weight	kg	8.1												
Operating Temperature	℃	-10℃ ~ +90℃												
Lubrication		Synthetic grease												
Protection Class		IP64												
Mounting Position		All directions												
Noise Level (N1=3000rpm, Non-Loaded)	dB (A)	≤63												
Rotary inertia	Kg · cm ²	0.47						0.44						

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm

*Dimensions based on servo-motor, please contact us for custom made order.

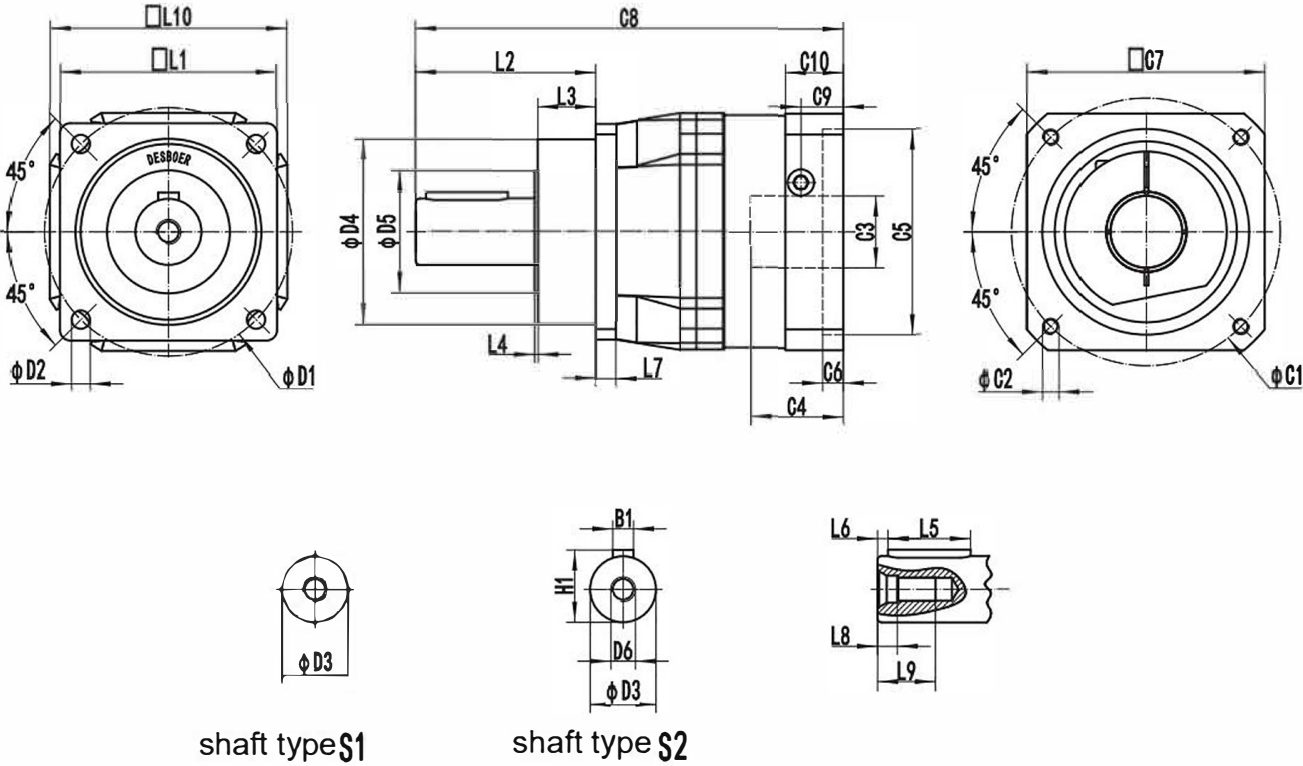
NF140Series

Parameter

Gearbox
performance data

Segment number		Single segment							
Ratio	i	3	4	5	6	7	8	9	10
Rated output torque	Nm	320	510	610	570	520	470	420	420
Emergency stop torque	Nm	Three times of Maximum Output Torque							
Rated input speed	rpm	3000							
Max input speed	rpm	6000							
Ultraprecise backlash	arcmin	≤1							
Precise backlash	arcmin	≤3							
Standard backlash	arcmin	≤5							
Torsional rigidity	Nm/arcmin	50							
Max. radial Force	N	14000							
Max. axial Force	N	11400							
Service Life	hr	30000 (15000 under continuous operation)							
Efficiency	%	≥97%							
Weight	kg	13.7							
Operating Temperature	℃	-10℃ ~ +90℃							
Lubrication		Synthetic grease							
Protection Class		IP64							
Mounting Position		All directions							
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤65							
Rotary inertia	Kg · cm²	9.21	7.54	7.42	7.25	7.14	7.07	7.04	7.03

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm



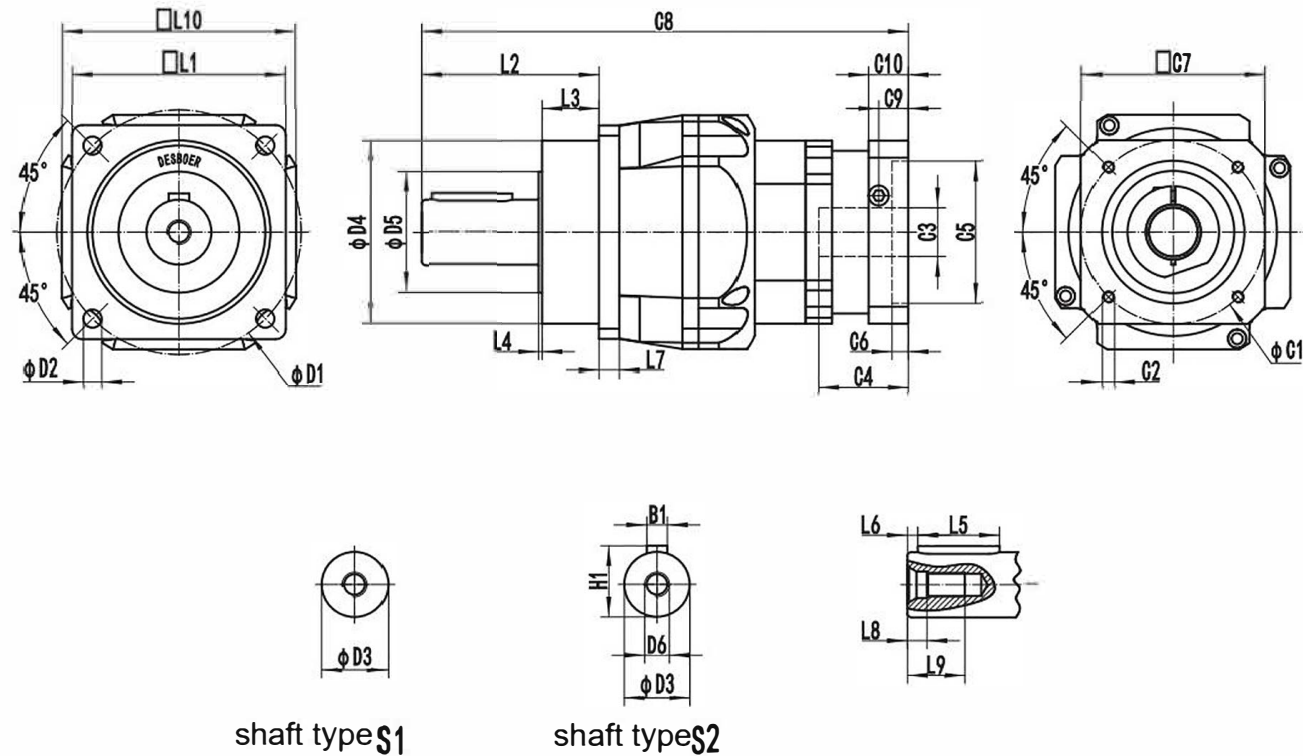
(Unit: mm)

NF140	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	165	11	40	130	75	M16×2P	142	115	30	3	70	5	20	12

NF140	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	36	142	145	M8×1.25P	≤42	80	110	10	130	269	29	39	12	43

*Dimensions based on servo-motor,please contact us for custom made order.

NF140 Series



(Unit: mm)

NF140	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	165	11	40	130	75	M16×2P	142	116	30	3	70	5	20	12

NF140	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	36	142	130	M8 × 1.25P	≤35	66	95	10	115	323	20.5	28	12	43

*Dimensions based on servo-motor, please contact us for custom made order.

NF140 Series

Parameter

Gearbox performance data

Segment number		Double segment												
Ratio	i	15	20	25	30	35	40	45	50	60	70	80	90	100
Rated output torque	Nm	320	510	610	570	520	570	420	610	570	520	470	420	420
Emergency stop torque	Nm	Three times of Maximum Output Torque												
Rated input speed	rpm	3000												
Max input speed	rpm	6000												
Ultraprecise backlash	arcmin	≤3												
Precise backlash	arcmin	≤5												
Standard backlash	arcmin	≤7												
Torsional rigidity	Nm/arcmin	50												
Max. radial Force	N	14000												
Max. axial Force	N	11400												
Service Life	hr	30000 (15000 under continuous operation)												
Efficiency	%	≥94%												
Weight	kg	16.6												
Operating Temperature	℃	-10℃ ~ +90℃												
Lubrication		Synthetic grease												
Protection Class		IP64												
Mounting Position		All directions												
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤65												
Rotary inertia	Kg · cm ²	2.71							2.57					

★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$

▲ Measured in the shaft center when the output speed is 100rpm

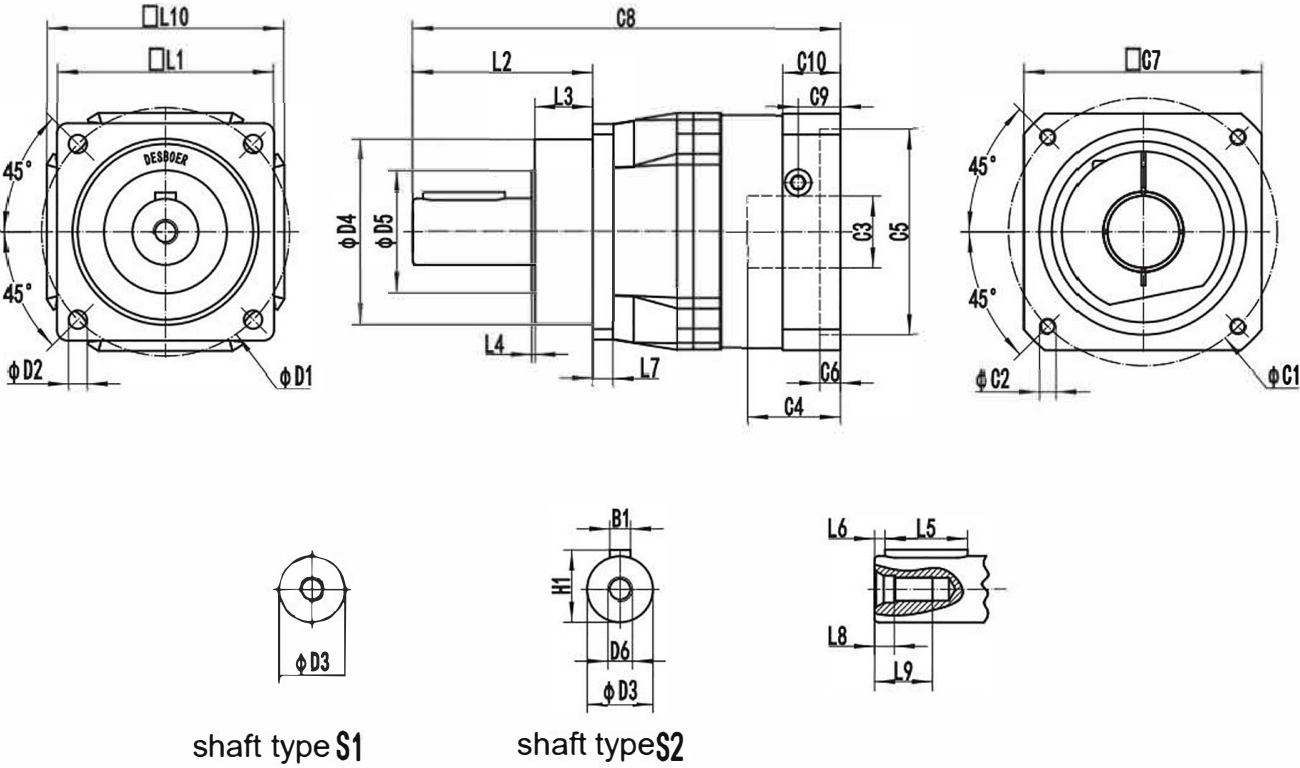
NF180Series

Parameter

Gearbox
performance data

Segment number		Single segment							
Ratio	i	3	4	5	6	7	8	9	10
Rated output torque	Nm	550	990	1140	1040	1040	950	850	850
Emergency stop torque	Nm	Three times of Maximum Output Torque							
Rated input speed	rpm	3000							
Max input speed	rpm	6000							
Ultraprecise backlash	arcmin	≤1							
Precise backlash	arcmin	≤3							
Standard backlash	arcmin	≤5							
Torsional rigidity	Nm/arcmin	145							
Max. radial Force	N	18000							
Max. axial Force	N	19500							
Service Life	hr	30000 (15000 under continuous operation)							
Efficiency	%	≥97%							
Weight	kg	28							
Operating Temperature	℃	-10℃ ~ +90℃							
Lubrication		Synthetic grease							
Protection Class		IP64							
Mounting Position		All directions							
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤67							
Rotary inertia	Kg · cm²	28.98	23.67	23.29	22.75	22.48	22.59	22.53	22.51

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm



(Unit: mm)

NF180	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	215	13	55	160	105	M20 × 2.5P	180	115	30	3	70	6	20	15

NF180	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	42	180	215	M12 × 1.75P	≤55	87	180	6	190	304	20.5	32	16	59

*Dimensions based on servo-motor,please contact us for custom made order.

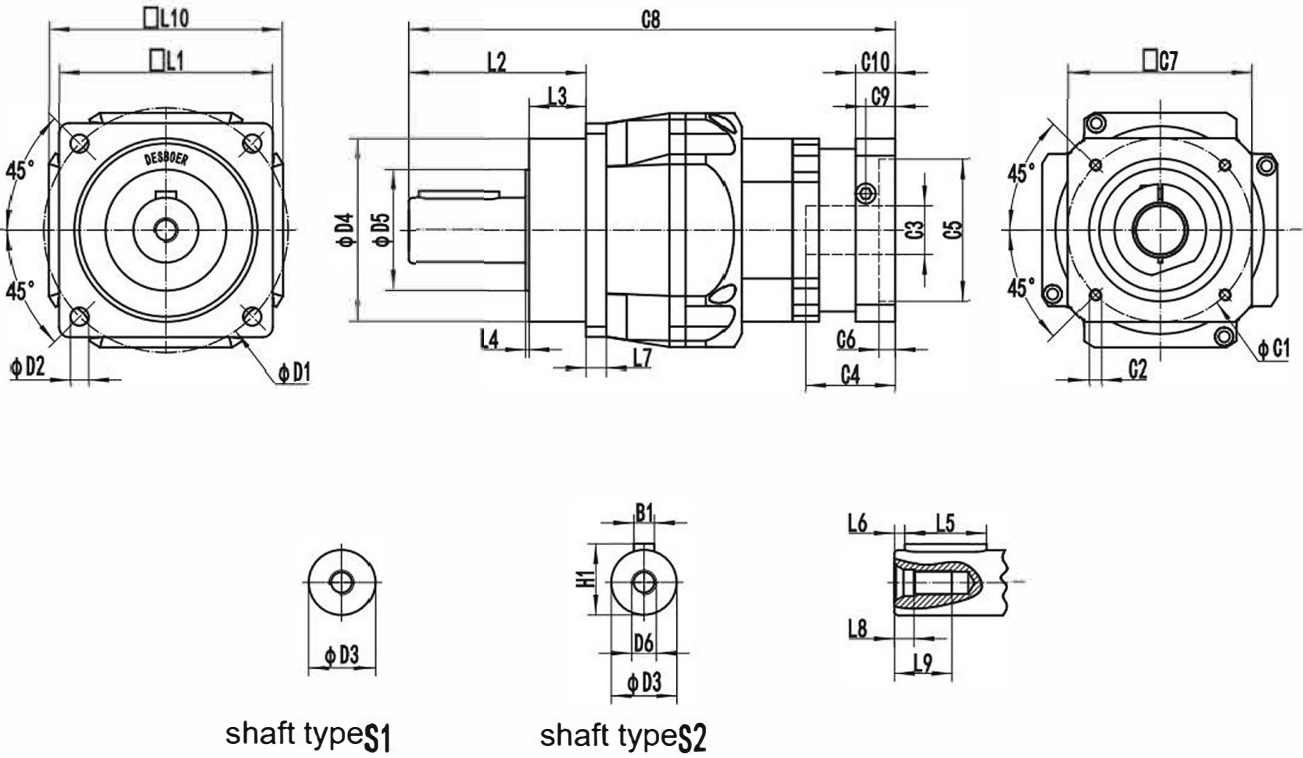
NF180Series

Parameter

Gearbox
performance data

Segment number		Double segment													
Ratio	i	15	20	25	30	35	40	45	50	60	70	80	90	100	
Rated output torque	Nm	550	990	1140	1040	1040	950	850	1140	1040	1040	950	850	850	
Emergency stop torque	Nm	Three times of Maximum Output Torque													
Rated input speed	rpm	3000													
Max input speed	rpm	6000													
Ultraprecise backlash	arcmin	≤3													
Precise backlash	arcmin	≤5													
Standard backlash	arcmin	≤7													
Torsional rigidity	Nm/arcmin	145													
Max. radial Force	N	18000													
Max. axial Force	N	19500													
Service Life	hr	30000 (15000 under continuous operation)													
Efficiency	%	≥94%													
Weight	kg	33													
Operating Temperature	℃	-10℃ ~ +90℃													
Lubrication		Synthetic grease													
Protection Class		IP64													
Mounting Position		All directions													
Noise Level (N1=3000rpm,Non-Loaded)	dB (A)	≤67													
Rotary inertia	Kg · cm²	7.42									7.03				

- ★ Maximum Output Torque $T_{2B}=60\% \times T_{2NOT}$
- ▲ Measured in the shaft center when the output speed is 100rpm



(Unit: mm)

NF180	D1	D2	D3	D4	D5	D6	L1	L3	L3	L4	L5	L6	L7	L3
	215	13	55	160	105	M20 × 1.5P	180	115	30	3	70	6	20	15

NF180	L9	L10	C1*	C2*	C3*	C4*	C5*	C6*	C7*	C8*	C9*	C10*	B1	H1
	42	180	145	M8 × 1.25P	≤42	76	110	10	130	371	29	39	16	59

*Dimensions based on servo-motor,please contact us for custom made order.