

# Planetary gear

<b>Properties:</b>	General:	Multi-stage, closed planetary gear For use in combination with our motors. Lifetime grease lubrication
	Housing:	Steel annulus, aluminum flange User-defined installation
	Tooth system tech.:	Internal gearing, hardened annulus Directly toothed motor shaft, optional shaft-mounted pinion
	Options:	Ball bearing end shaft Special shafts

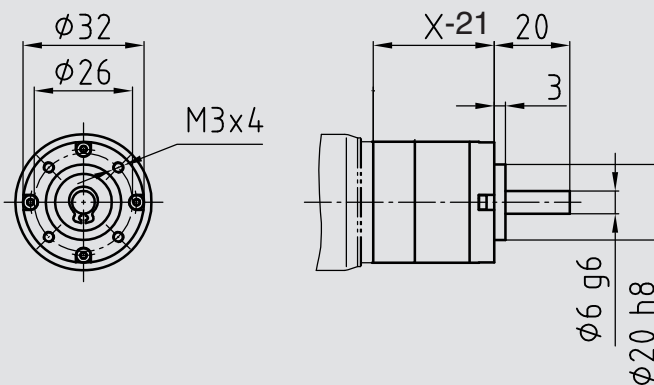


			1-stage	2-stage	3-stage	4-stage
<b>Loading capacity</b>	Max. radial force	N	40	70	100	130
	Max. axial force	N	10	20	30	40
	Max. input speed	rpm	3000	3000	3000	3000
	Temperature range	°C	-20° - +40°	-20° - +40°	-20° - +40°	-20° - +40°
	Backlash	°DEG	1,5	2	2,5	3
<b>Mounting</b>	Shaft diameter	mm	6	6	6	6
	Weight	kg	0.16	0.21	0.26	0.31

<b>Transmission ratio</b>	<b>i</b>	<b>Stages</b>		<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>		<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>		<b>M (Nm)</b>	<b>η</b>
	3.7	1	0.75	0.8	51	3	4.5	0.7	264	4	4.5	0.65			
	4.3	1	0.75	0.8	59	3	4.5	0.7	352	4	4.5	0.65			
	5.2	1	0.75	0.8	68	3	4.5	0.7	369	4	4.5	0.65			
	6.8	1	0.75	0.8	79	3	4.5	0.7	408	4	4.5	0.65			
	13.7	2	2.25	0.75	93	3	4.5	0.7	459	4	4.5	0.65			
	15.9	2	2.25	0.75	100	3	4.5	0.7	516	4	4.5	0.65			
	18.4	2	2.25	0.75	115	3	4.5	0.7	672	4	4.5	0.65			
	22	2	2.25	0.75	130	3	4.5	0.7	837	4	4.5	0.65			
	26.9	2	2.25	0.75	150	3	4.5	0.7	1012	4	4.5	0.65			
	29	2	2.25	0.75	181	3	4.5	0.7	1223	4	4.5	0.65			
	35	2	2.25	0.75	236	3	4.5	0.7	1594	4	4.5	0.65			
	46	2	2.25	0.75	308	3	4.5	0.7	2076	4	4.5	0.65			

## Dimensions



	1-stage	2-stage	3-stage	3-stage
X	42	51.5	61	71.5

Dimension X may vary depending on mounting type and engine size

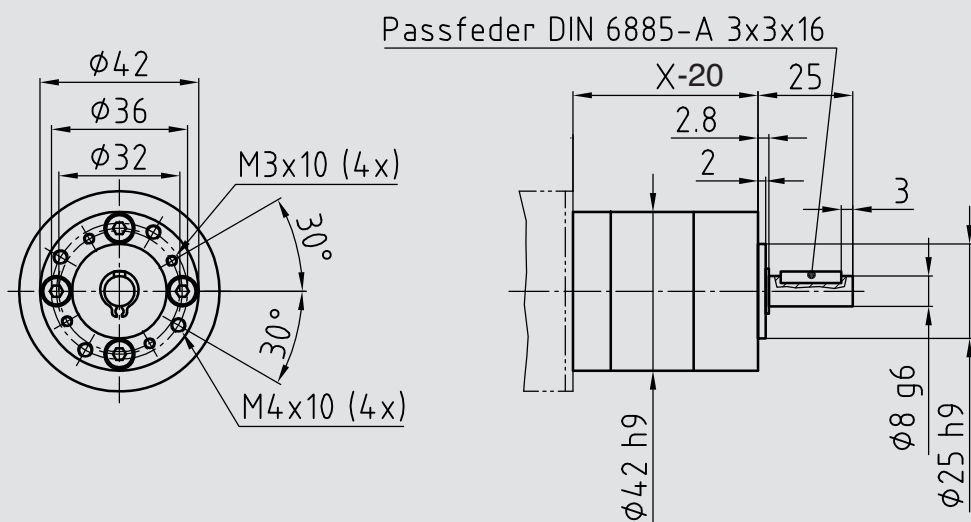
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	Tooth system tech.:	Internal gearing, hardened annulus Directly toothed motor shaft, optional shaft-mounted pinion
	Options:	Ball bearing end shaft Special shafts



			1-stage	2-stage	3-stage							
<b>Loading capacity</b>	Max. radial force	N	160	230	300							
	Max. axial force	N	50	80	110							
	Max. input speed	rpm	3000	3000	3000							
	Temperature range	°C	-20° - +40°	-20° - +40°	-20° - +40°							
	Backlash	°DEG	0,7	0,75	0,8							
<b>Mounting</b>	Shaft diameter	mm	8	8	8							
	Weight	kg	0.3	0.4	0.5							
<b>Transmission Ratios</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>
	3.7	1	3	0.8	26.9	2	7.5	0.75	93	3	15	0.7
	4.3	1	3	0.8	29	2	7.5	0.75	100	3	15	0.7
	5.2	1	3	0.8	35	2	7.5	0.75	115	3	15	0.7
	6.8	1	3	0.8	46	2	7.5	0.75	130	3	15	0.7
	13.7	2	7.5	0.75	51	3	15	0.7	150	3	15	0.7
	15.9	2	7.5	0.75	59	3	15	0.7	181	3	15	0.7
	18.4	2	7.5	0.75	68	3	15	0.7	236	3	15	0.7
	22	2	7.5	0.75	79	3	15	0.7	308	3	15	0.7

## Dimensions



	1-stage	2-stage	3-stage
X	59	72	85

Dimension X may vary depending on mounting type and engine size

# Planetary gear

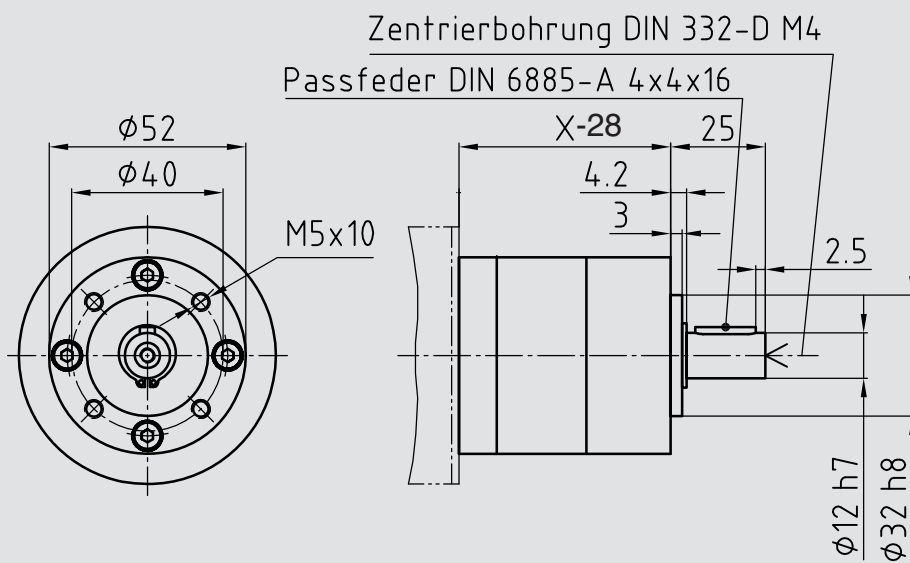
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Options:	Special shafts



			1-stage	2-stage	3-stage							
<b>Loading capacity</b>	Max. radial force	N	200	320	450							
	Max. axial force	N	60	100	150							
	Max. input speed	rpm	3000	3000	3000							
	Temperature range	°C	-20° - +40°	-20° - +40°	-20° - +40°							
	Backlash	°DEG	0,7	0,75	0,8							
<b>Mounting</b>	Shaft diameter	mm	12	12	12							
	Weight	kg	0.7	0.9	1.1							
<b>Transmission Ratios</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	<b>η</b>
	3.7	1	4	0.8	26.9	2	12	0.75	93	3	25	0.7
	4.3	1	4	0.8	29	2	12	0.75	100	3	25	0.7
	5.2	1	4	0.8	35	2	12	0.75	115	3	25	0.7
	6.8	1	4	0.8	46	2	12	0.75	130	3	25	0.7
	13.7	2	12	0.75	51	3	25	0.7	150	3	25	0.7
	15.9	2	12	0.75	59	3	25	0.7	181	3	25	0.7
	18.4	2	12	0.75	68	3	25	0.7	236	3	25	0.7
22	2	12	0.75	79	3	25	0.7	308	3	25	0.7	

**Dimensions**



	1-stage	2-stage	3-stage
X	74	88	102

Dimension X may vary depending on mounting type and engine size

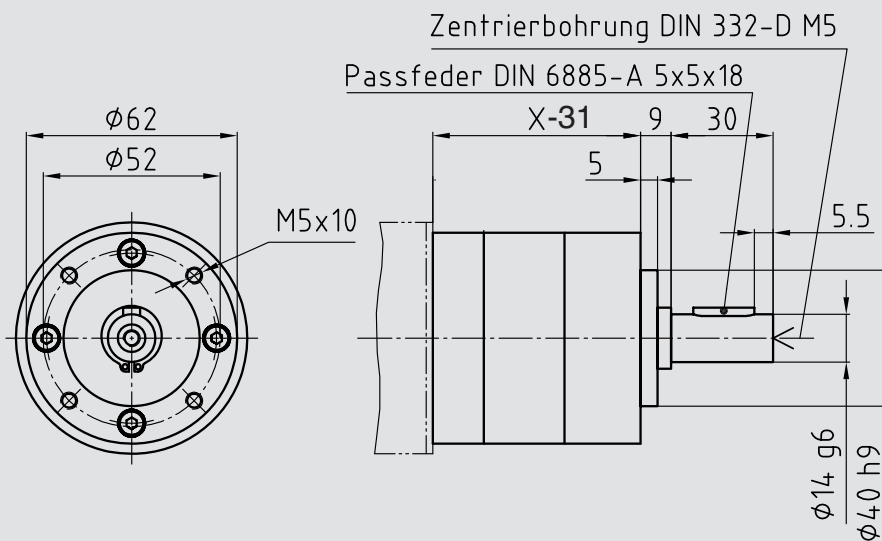
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			1-stage	2-stage	3-stage							
<b>Loading capacity</b>	Max. radial force	N	240	360	520							
	Max. axial force	N	50	70	120							
	Max. input speed	rpm	3000	3000	3000							
	Temperature range	°C	-20° - +40°	-20° - +40°	-20° - +40°							
	Backlash	°DEG	1	1,5	2							
<b>Mounting</b>	Shaft diameter	mm	14	14	14							
	Weight	kg	0.8	1.2	1.6							
<b>Transmission Ratio</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$
	3.7	1	8	0.8	26.9	2	25	0.75	93	3	50	0.7
	4.3	1	8	0.8	29	2	25	0.75	100	3	50	0.7
	5.2	1	8	0.8	35	2	25	0.75	115	3	50	0.7
	6.8	1	8	0.8	46	2	25	0.75	130	3	50	0.7
	13.7	2	25	0.75	51	3	50	0.7	150	3	50	0.7
	15.9	2	25	0.75	59	3	50	0.7	181	3	50	0.7
	18.4	2	25	0.75	68	3	50	0.7	236	3	50	0.7
	22	2	25	0.75	79	3	50	0.7	308	3	50	0.7

## Dimensions



Dimension X may vary depending on mounting type and engine size

	1-stage	2-stage	3-stage
X	77	93	109

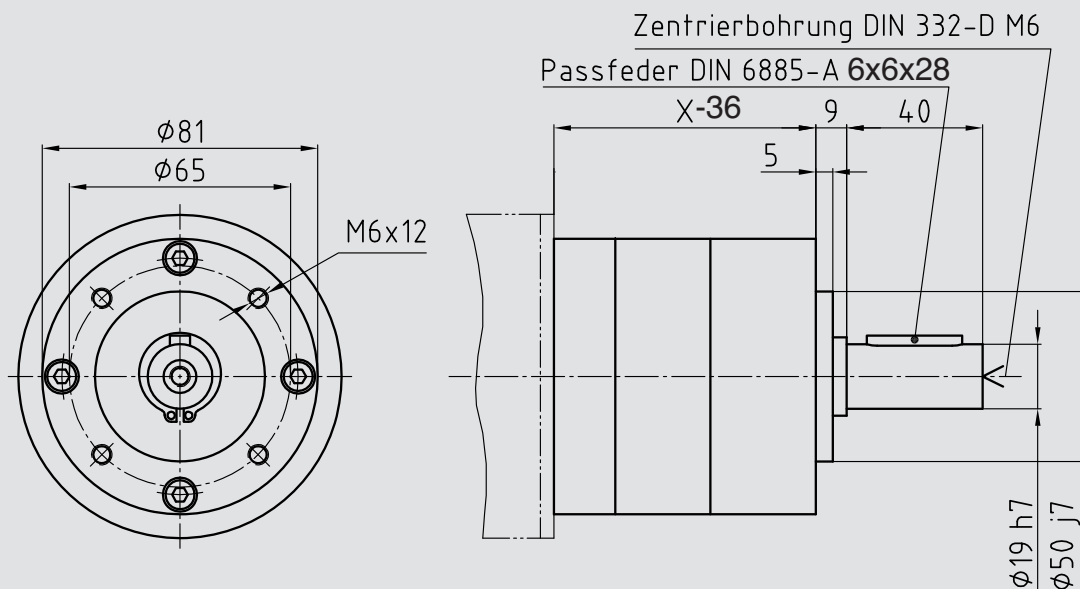
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			1-stage	2-stage	3-stage							
<b>Loading capacity</b>	Max. radial force	N	400	600	1000							
	Max. axial force	N	80	120	200							
	Max. input speed	rpm	3000	3000	3000							
	Temperature range	°C	-20° - +40°	-20° - +40°	-20° - +40°							
	Backlash	°DEG	0.45	0.5	0.55							
<b>Mounting</b>	Shaft diameter	mm	19	19	19							
	Weight	kg	1.8	2.5	3.2							
<b>Transmission Ratio</b>	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$	<b>i</b>	<b>Stages</b>	<b>M (Nm)</b>	$\eta$
	3.7	1	20	0.8	26.9	2	60	0.75	93	3	120	0.7
	4.3	1	20	0.8	29	2	60	0.75	100	3	120	0.7
	5.2	1	20	0.8	35	2	60	0.75	115	3	120	0.7
	6.8	1	20	0.8	46	2	60	0.75	130	3	120	0.7
	13.7	2	60	0.75	51	3	120	0.7	150	3	120	0.7
	15.9	2	60	0.75	59	3	120	0.7	181	3	120	0.7
	18.4	2	60	0.75	68	3	120	0.7	236	3	120	0.7
22	2	60	0.75	79	3	120	0.7	308	3	120	0.7	

## Dimensions



Dimension X may vary depending on mounting type and engine size

	1-stage	2-stage	3-stage
X	95	117	139