Planetary gears GSN

The high-end economy gearbox distinguishes itself by excellent quiet operating characteristics and low noise emission.

The GSN line is the perfect match for applications where a backlash of 10 arcmin or better is required. Its helical gears secure a minimum noise level and a smooth running. The GSN line is used for various applications with regard to precision and efficiency.

You benefit from:

- Low noise level due to ground helical gearing up to <=58 dB (A)
- High power density
- Protection class IP 65
- High torsional rigidity
- Lifetime of 30,000 h
- Lifetime lubrication

Full needle bearing

Torques that beat the competition for units of the same size.

Precision ground helical gearing

Extremely quiet operating characteristics and minimization of operating noise.

Shaft seal for protection class IP 65

Optimal protection against dust particles and splash water.

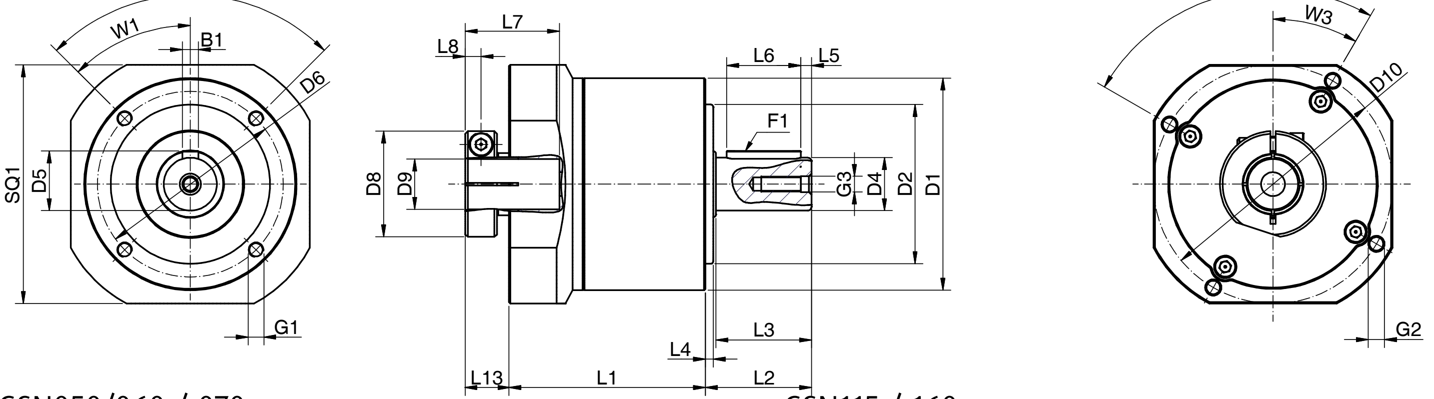
Typical application example

Height adjustment of cleaning systems

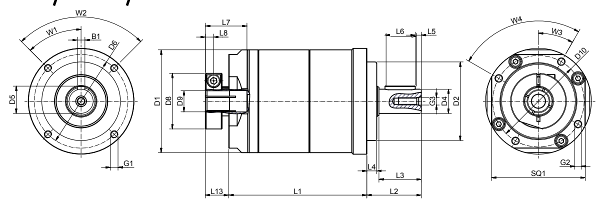
GSN series planetary gears are used in industrial surface cleaning systems of **Wandres GmbH micro-cleaning** for the automatic height adjustment of the cleaning unit. While the height adjustment was still done manually in older generations of the system, the planetary gear ensures an automated operation in combination with motor and inverter in new models. The cleaning systems are primarily used in the sheet metal and plate processing industry as well as in the printing, glass and automotive industries. The decision in favour of the GSN series was based in particular on its rapid availability and excellent price/performance ratio.

ISO-projection metric

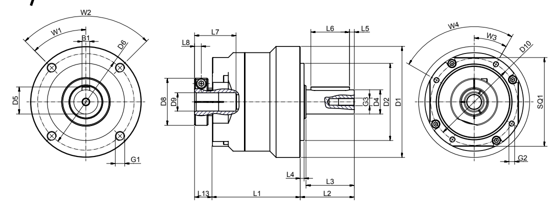
GSN080 / 090



GSN050/060 / 070



GSN115 / 160



Planetary gears GSN • Dimensions

			GSN050	GSN060	GSN070	GSN080	GSN090	GSN115	GSN160
Housing diameter	D_1		50	60	70	80	90	115	160
Centering diameter output	D_2	h7	35	40	52	60	68	80	130
Output shaft diameter	D_4	h6	12	14	16	20	22	25	40
Shaft height including feather key	D_5		13.5	16	18	22.5	24.5	28	43
Hole circle diameter output	D_6		44	52	62	70	80	100	145
Clamping system diameter	D_8		29	29	37	40	49	49	67
Max. motor shaft diameter	D_9	F7	14	14	19	19	24	24	32
Hole circle diameter input	D_{10}		40	42	60	90	90	90	145
Housing length 1-stage	L_1		55	58	57.5	74	83	91	115
Housing length 2-stage	L_1		81	84	91.3	109	-	134.5	175
Shaft length output	L_2		21.5	34	36	40	46	56	88
Shaft length from shoulder	L_3		20	30	28	36	36	50	78
Centering depth output	L_4		4	3	6.5	3	8	4	8
Distance from shaft end	L_5		2.5	2.5	4	4	2.5	5	5
Feather key length	L_6		15	25	20	28	30	40	65
Max. input length motor shaft	L_7		25	27.5	25	35.5	40	43	55
Distance to center of screw	L_8		4.5	5	5.5	6	7	7	9
Distance clamping ring - housing	L_{13}		11	11.5	15.5	16.5	17.5	18.5	35
Square housing	SQ_1		-	44	62	90	90	92	120
Feather key width	B_1	h9	4	5	5	6	6	8	12
Min. mounting thread x depth	G_1	4 x	M4 x 8	M5 x 10	M5 x 10	M6 x 12	M6 x 12	M10 x 20	M12 x 24
Min. mounting thread x depth	G_2	4 x	M4 x 8	M4 x 8	M5 x 10	M6 x 12	M6 x 12	M6 x 12	M8 x 20
Min. mounting thread x depth	G_3		M4 x 11	M4 x 11	M5 x 11	M6 x 15	M8 x 16	M8 x 20	M8 x 16
Angle in °	W_1		45	45	45	45	45	45	45
x times angle in °	W_2		4 x 90	4 x 90	4 x 90	4 x 90	4 x 90	4 x 90	4 x 90
Angle in °	W_3		30	30	30	30	30	30	30
x times angle in °	W_4		4 x 90	4 x 90	4 x 90	4 x 90	4 x 90	4 x 90	4 x 90

Find more information regarding flanges and reduction sleeves for all common motor types on pages 48-50.

			GSN050	GSN060	GSN070	GSN080	GSN090	GSN115	GSN160	Stage
Service lifetime[*1]	tl	h	30000							
Nominal input speed	n_1	rpm	4500	4500	4500	4000	4000	4000	4000	
Max. input speed	n_1 max.	rpm	8000	8000	8000	7000	7000	7000	7000	
Standard backlash	j_t	arcmin	<=7							1
			<=10							2
Noise level[*2]	Q_g	dB (A)	<=58			<=60	<=63	<=65		
Efficiency	η	%	>=97							1
			>=95							2
Protection class			IP65							
Torsional rigidity	c_t	Nm/arcmin	3	4	5	12	13	14	60	
Max. radial force[*3]	F_{2r}	N	725	1100	1770	2400	3150	3590	7800	
Max. axial force[*3]	F_{2a}	N	392	515	890	1275	1575	1795	4650	
Operating temperature	T_B	°C	-25°C - +90°C							
Lubrication			liquid grease (lifetime-lubricated)							
Weight with flange[*4]	mg	kg	0.73	0.99	1.25	2.1	3.5	4.98	13.25	1
			1.05	1.46	1.9	3.2	5.2	6.92	18.5	2
Mounting position			Any							

Output torques			GSN050	GSN060	GSN070	GSN080	GSN090	GSN115	GSN160	Ratio	Stage
Nominal output torque[*5]	T_{2B}	Nm	18	29	57	118	153	182	688	3	1
			16	40	50	116	151	161	611	4	1
			15	42	47	113	147	176	680	5	1
			14	37	43	110	134	164	630	7	1
			13	26	42	105	129	155	604	10	1
			18	29	57	118	153	182	688	15	2
			16	40	50	116	151	161	611	20	2
			15	42	47	113	147	176	680	25	2
			14	29	43	118	153	182	641	30	2
			14	37	43	110	134	164	630	35	2
			13	40	41	116	151	161	608	40	2
			15	42	47	113	147	176	680	50	2
			14	37	43	110	134	164	630	70	2
			13	26	42	105	129	155	604	100	2
Max. acceleration torque[*6]	T_{2N}	Nm	31	50	97	202	263	297	1125	3	1
			27	68	86	198	259	268	999	4	1
			25	72	81	194	252	288	1112	5	1
			23	63	74	189	230	268	1031	7	1
			22	45	72	180	221	254	988	10	1
			31	50	97	202	263	297	1125	15	2
			27	68	86	198	259	263	999	20	2
			25	72	81	194	252	288	1112	25	2
			23	50	74	202	263	297	1049	30	2
			23	63	74	189	230	268	1031	35	2
			22	68	70	198	259	263	995	40	2
			25	72	81	194	252	288	1112	50	2
			23	63	74	189	230	268	1031	70	2
			22	45	72	180	221	254	988	100	2
Emergency stop torque[*7]	T_{2Not}	Nm	54	87	171	354	459	546	2064	3	1
			48	120	150	348	453	483	1833	4	1
			45	126	141	339	441	528	2040	5	1
			42	111	129	330	402	492	1890	7	1
			39	78	126	315	387	465	1812	10	1
			54	87	171	354	459	546	2064	15	2
			48	120	150	348	453	483	1833	20	2
			45	126	141	339	441	528	2040	25	2
			42	87	129	354	459	546	1923	30	2
			42	111	129	330	402	492	1890	35	2
			39	120	123	348	453	483	1824	40	2
			45	126	141	339	441	528	2040	50	2
			42	111	129	330	402	492	1890	70	2
			39	78	126	315	387	465	1812	100	2

Mass moment of inertia			GSN050	GSN060	GSN070	GSN080	GSN090	GSN115	GSN160	Ratio	Stage
Mass moment of inertia*8	J_1	$kgcm^2$	0.030	0.06	0.15	0.48	0.55	0.60	9.21	3	1
			0.030	0.06	0.15	0.38	0.42	0.45	7.54	4	1
			0.030	0.06	0.13	0.38	0.42	0.45	7.42	5	1
			0.030	0.06	0.13	0.38	0.42	0.45	7.14	7	1
			0.030	0.06	0.13	0.35	0.42	0.41	7.03	10	1
			0.025	0.05	0.11	0.29	0.38	0.40	8.65	15	2
			0.025	0.05	0.11	0.29	0.38	0.40	7.08	20	2
			0.025	0.05	0.11	0.29	0.38	0.40	6.97	25	2
			0.025	0.05	0.11	0.29	0.38	0.40	8.65	30	2
			0.025	0.05	0.11	0.29	0.38	0.40	6.71	35	2
			0.025	0.05	0.11	0.29	0.38	0.40	7.08	40	2
			0.025	0.05	0.11	0.29	0.38	0.40	6.97	50	2
			0.025	0.05	0.11	0.29	0.38	0.40	6.71	70	2
			0.025	0.05	0.11	0.26	0.32	0.38	6.61	100	2

*1 Load factor K_A=1, n_2=100 rpm ,at room temperature T=20°C in new condition
*2 Sound pressure level at 1 m distance, measured for an input speed of 3000 rpm without load
*3 On the center of the output shaft
*4 Deviation of up to 10 % possible
*5 Service life: 30,000 h, n_2=100 rpm
*6 Max 1000 cycles per hour. Acceleration torque proportion < 5% of the total operation time
*7 Max 1000 cycles over the gear service life
*8 Related to the input shaft