

# Technical Data sheet for Part-turn Worm Gearboxes

GS 315 - GS 500  
with  
GZ 30 – GZ 40

## TECHNICAL DATA FOR PART-TURN WORM GEARBOXES (FLANGE MOUNTED) AND PRIMARY REDUCTION GEARS

### Application

For motor or manual operation of valves (e.g. butterfly valves, ball valves, louver valves)  
For special applications, please consult AUMA

### Worm gearboxes GS 315 - GS 500 with primary reduction gearing on gearing GZ 30 – GZ 40

Type	Output torques (Nm) / Valve mounting flange – EN ISO 5211		Valve attachment Max. shaft Ø mm	Suitable primary reduction gearing			Input torques		Turns for	Factor <sup>2)</sup>	Input shaft Ø mm	Weight <sup>3)</sup> GS/+GZ kg		
	Option - 1 Nm	Option - 2 Nm		Type	Reduction ratio (i)		at output torque of							
			GS		GZ	GS+GZ	100% Nm	140% Nm						
GS 315	63000 / F40	90000 / F48	200	-	53:1	-	53:1	2636	3766	13.25	23.9	60	520	
				GZ 30	53:1	8:1	424:1	389	556	106	162	30		630
					53:1	16:1	848:1	194	277	212	325	30		
					53:1	32:1	1696:1	97	138	424	650	20		
GS 400	125000 / F48	180000 / F60	250	-	54:1	-	54:1	5144	7407	13.5	24.3	80	980	
				GZ 35	54:1	8:1	432:1	758	1091	108	165	40		1100
					54:1	16:1	864:1	379	545	216	330	30		
					54:1	32:1	1728:1	189	273	432	660	30		
GS 500	250000 / F60	360000 / - <sup>1)</sup>	315	-	52:1	-	52:1	10684	15385	13	23.4	100	1800	
				GZ 40	52:1	16:1	832:1	781	1125	208	320	40		2000
					52:1	32:1	1664:1	391	563	416	640	30		
					GZ 40/ GZ 16	52:1	64:1	3328:1	218	314	832	1147		

### Possible combinations with multi-turn actuators

Gearbox	Primary reduction gearing	Flange for mounting of actuator		Perm. actuator weight Option-1 max. Kg	Suitable AUMA multi-turn actuator for Option-1 output torque	Perm. actuator weight Option-2 max. Kg	Suitable AUMA multi-turn actuator for Option-2 output torque	Operating times for 50 Hz <sup>6)</sup> in seconds for 90° at actuator speed in rpm							
		EN ISO 5210	DIN 3210					16	22	32	45	63	90	125	180
GS 315	-	F30	-	400	SA30.1	400	SA30.1	50	36	25	-	-	-	-	-
	GZ30 (8:1)	F14	G½	99	SA50	99	SA60	-	289	199	141	101	71	51 <sup>7)</sup>	35 <sup>7)</sup>
	GZ30 (16:1)	F14	G½	71	SA25	71	SA30	-	-	-	283	202	141	102 <sup>7)</sup>	71 <sup>7)</sup>
	GZ30 (32:1)	F10	G0	33	SA12	-	-	-	-	-	-	-	-	283	204 <sup>7)</sup>
GS 400	-	F35	-	800	SA35.1	800	SA35.1	51	37	25	-	-	-	-	-
	GZ35 (8:1)	F16	G3	131	SA100	131	SA100 <sup>7)</sup>	-	296	203	144	103	72	52 <sup>7)</sup>	36 <sup>7)</sup>
	GZ35 (16:1)	F14	G½	99	SA50	99	SA60	-	-	-	288	206	144	104 <sup>7)</sup>	72 <sup>7)</sup>
	GZ35 (32:1)	F14	G½	71	SA25	71	SA30	-	-	-	-	-	288	207 <sup>7)</sup>	144 <sup>7)</sup>
GS 500	-	F40	-	1000	SA40.1	1000	SA40.1	49	35	24	-	-	-	-	-
	GZ40 (16:1)	F16	G3	131	SA100	131	SA100 <sup>7)</sup>	-	-	390	277	198	139	100 <sup>7)</sup>	69 <sup>7)</sup>
	GZ40 (32:1)	F14	G½	99	SA50	99	SA60	-	-	-	-	-	277	200 <sup>7)</sup>	139 <sup>7)</sup>
	GZ40/GZ16 (64:1)	F14	G½	71	SA25	99	SA50	-	-	-	-	-	-	399 <sup>7)</sup>	277 <sup>7)</sup>

1) Valve mounting flange size beyond EN ISO 5211 standard, please consult AUMA.

2) Conversion factor from output torque to input torque to determine the actuator size. This can be used to select the actuator for torque other than the max. permissible valve torque.

3) With coupling (pilot bore), grease filling in the gear housing and without hand wheel

4) Standard values at 50 Hz. At 60 Hz the speed increases by 20% and the operating times are reduced to 83% of the indicated values.

5) Observe max. output torque of the multi-turn actuators.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

# Technical Data sheet for Part-turn Worm Gearboxes

GS 315 - GS 500 with GZ 30 – GZ 40	TECHNICAL DATA FOR PART-TURN WORM GEARBOXES (FLANGE MOUNTED) AND PRIMARY REDUCTION GEARS																																															
<b>Features and functions</b>																																																
Version	Standard: clockwise rotation LR, counterclockwise rotation RL, option: R or L																																															
Self-locking	The gearboxes are self-locking when at standstill under normal service conditions; strong vibrations may cancel the self-locking effect. While in motion, safe breaking is not guaranteed. If this is required, a separate brake must be used.																																															
End stops	Adjustable end stops by travelling nut																																															
Swing angle	Standard : Adjustable 0° - 135°; set in the factory to 92° unless ordered otherwise. Option : Swing angle > 100°, multi-turn version without end stops, GSD version																																															
Mechanical position indicator	Standard : Pointer cover for continuous position indication Options : Protection cover for buried service instead of pointer cover.																																															
Input shaft	Cylindrical with parallel key according to IS 2048 (refer to tables on page 18)																																															
<b>Operation</b>																																																
Motor operation	With electric multi-turn actuator, directly or through primary reduction gearing GZ. Flanges for mounting of multi-turn actuator (refer to tables on page 18)																																															
Type of duty	Short-time duty S2-15min. (open-close duty)																																															
Manual operation	Via handwheel, directly or through primary reduction gearing GZ Available handwheel diameters, selection according to the max. output torque:																																															
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Type</th> <th colspan="3">GS 315</th> <th colspan="3">GS 400</th> <th colspan="3">GS 500</th> </tr> </thead> <tbody> <tr> <td>Primary red. gearing</td> <td>-</td> <td colspan="2">GZ 30</td> <td>-</td> <td colspan="2">GZ 35</td> <td>-</td> <td colspan="2">GZ 40</td> <td>GZ 40 /GZ 16</td> </tr> <tr> <td>Reduction ratio</td> <td>-</td> <td>8:1</td> <td>16:1</td> <td>32:1</td> <td>-</td> <td>8:1</td> <td>16:1</td> <td>32:1</td> <td>-</td> <td>16:1</td> <td>32:1</td> <td>64:1</td> </tr> <tr> <td>Hand wheel Ø mm</td> <td>-</td> <td>800</td> <td>500/ 640</td> <td>400</td> <td>-</td> <td>-</td> <td>800</td> <td>500/ 640</td> <td>-</td> <td>-</td> <td>800</td> <td>500/ 640</td> </tr> </tbody> </table>	Type	GS 315			GS 400			GS 500			Primary red. gearing	-	GZ 30		-	GZ 35		-	GZ 40		GZ 40 /GZ 16	Reduction ratio	-	8:1	16:1	32:1	-	8:1	16:1	32:1	-	16:1	32:1	64:1	Hand wheel Ø mm	-	800	500/ 640	400	-	-	800	500/ 640	-	-	800	500/ 640
Type	GS 315			GS 400			GS 500																																									
Primary red. gearing	-	GZ 30		-	GZ 35		-	GZ 40		GZ 40 /GZ 16																																						
Reduction ratio	-	8:1	16:1	32:1	-	8:1	16:1	32:1	-	16:1	32:1	64:1																																				
Hand wheel Ø mm	-	800	500/ 640	400	-	-	800	500/ 640	-	-	800	500/ 640																																				
<b>Primary reduction gearing</b>																																																
Primary reduction gearing	- Type GZ as spur gear with various reduction ratios for reducing the input torques. (refer to tables page 18) - Combination with GK bevel gearbox directly on GS or on GS with GZ possible.																																															
<b>Valve attachment</b>																																																
Valve attachment	Dimensions according to EN ISO 5211 (refer to tables on page 18). Standard : GS315 – GS500 with spigot Optional : GS315 – GS500 without spigot																																															
Splined coupling for connection to the valve shaft	Standard : With pilot bore Worm gearbox can be repositioned 4 x 90° on coupling Including grub screw for fixing of valve shaft Options : Machined with bore and keyway, square bore or bore with two-flats.																																															
<b>Service conditions</b>																																																
Mounting position	Any position																																															
Enclosure protection according to IS/IEC 60529	Standard : IP 67 Totally enclosed protection against short time immersion in water Options : IP 68 Enclosure can be provided on request																																															
Corrosion protection	Standard : Suitable for installation in industrial units, in water or power plants with a low pollutant concentration																																															
Paint	Standard : Epoxy primer + Epoxy finish paint Option : Other paints on request																																															
Colour	Standard : Smoke Grey, Code 692 as per IS: 5 Option : Other colours on request																																															
Ambient temperature	Standard : – 20 °C to + 80 °C Option : Others temperature requirements on request.																																															
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