

Technical data Multi-turn gearboxes	GST 10.1 – GST 40.1
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Spur gearboxes GST 10.1 - GST 40.1													
Type	Output torque		Reduction ratio	Input torque ¹⁾		Valve attachment		Factor ²⁾	Input shaft		Handwhl ³⁾ max. Ø mm	Weight ⁴⁾ approx. kg	
	Nominal torque max. Nm	Modulating torque max. Nm		Nominal torque Nm	Modulating torque	Standard EN ISO 5210	Option DIN 3210		Ø	Standard			Option
GST 10.1	120	60	1 : 1	135	66	F10	G0	0.9	20	–	200	14	
			1.4 : 1	95	46				1.3	–			
			2 : 1	67	33				1.8	–			
GST 14.1	250	120	1.4 : 1	198	92	F14	G½	1.3	30	–	315	26	
			2 : 1	139	66				1.8	20			30
			2.8 : 1	99	48				2.5	20			30
GST 14.5	500	200	2 : 1	278	111	F14	G½	1.8	30	–	315	26	
			2.8 : 1	198	80				2.5	30			–
			4 : 1	139	55				3.6	20			–
GST 16.1	1,000	400	2.8 : 1	397	160	F16	G3	2.5	30	–	400	40	
			4 : 1	278	111				3.6	30			–
			5.6 : 1	198	80				5.0	30			–
GST 25.1	2,000	800	4 : 1	556	222	F25	G4	3.6	30	40	500	82	
			5.6 : 1	397	160				5.0	30			40
			8 : 1	278	111				7.2	30			40
GST 30.1	4,000	1 600	5.6 : 1	794	320	F30	G5	5.0	40	–	500	115	
			8 : 1	556	222				7.2	30			40
			11 : 1	404	162				9.9	30			40
GST 35.1	8,000	–	8 : 1	1 111	–	F35	G6	7.2	40	50	500	195	
			11 : 1	808	–				9.9	40			50
			16 : 1	556	–				14.4	40			30
GST 40.1	16,000	–	11 : 1	1 616	–	F40	G7 ⁵⁾	9.9	50	–	500	255	
			16 : 1	1 111	–				14.4	40			50
			22 : 1	808	–				19.8	40			50

Possible combinations with multi-turn actuators					
Gearboxes	Flange for mounting of actuator		Perm. actuator weight max. kg	Suitable AUMA multi-turn actuator ⁶⁾	
	Standard EN ISO 5210	Option DIN 3210		Type SA/SAR 07.1 – 25.1	Type SA/SAR 07.2 – 16.2 SA 25.1
GST 10.1	F10/F14	G0/G½	40/80	SA/SAR 10.1 / SA/SAR 14.1	SA/SAR 10.2 / SA/SAR 14.2
	F10	G0	40	SA/SAR 10.1	SA/SAR 10.2
	F10	G0	40	SA/SAR 07.5 / SA/SAR 10.1	SA/SAR 07.6 / SA/SAR 10.2
GST 14.1	F14	G½	80	SA/SAR 14.1	SA/SAR 14.2
	F10/F14	G0/G½	40/80	SA/SAR 10.1 / SA/SAR 14.1	SA/SAR 10.2 / SA/SAR 14.2
	F10	G0	40	SA/SAR 10.1	SA/SAR 10.2
GST 14.5	F14	G½	80	SA/SAR 14.1 / SA 14.5	SA/SAR 14.2 / SA 14.6
	F14	G½	80	SA/SAR 14.1	SA/SAR 14.2
	F10/F14	G0/G½	40/80	SA/SAR 10.1 / SA 14.1	SA/SAR 10.2 / SA 14.2
GST 16.1	F14	G½	80	SA/SAR 14.5	SA/SAR 14.6
	F14	G½	80	SA/SAR 14.1 / SA/SAR 14.5	SA/SAR 14.2 / SA/SAR 14.6
	F14	G½	80	SA/SAR 14.1	SA/SAR 14.2
GST 25.1	F14/F16	G½/G3	80/160	SA/SAR 14.5 / SA/SAR 16.1	SA/SAR 14.6 / SA/SAR 16.2
	F14	G½	80	SA/SAR 14.5	SA/SAR 14.6
	F14	G½	80	SA/SAR 14.1 / SA 14.5	SA/SAR 14.2 / SA 14.6
GST 30.1	F16	G3	160	SA/SAR 16.1	SA/SAR 16.2
	F14/F16	G½/G3	80/160	SA/SAR 14.5 / SA 16.1	SA/SAR 14.6 / SA 16.2
	F14	G½	80	SA/SAR 14.5	SA/SAR 14.6
GST 35.1	F16/F25	G3/G4	160/300	SA 16.1 / SA 25.1	SA 16.2 / SA 25.1
	F16	G3	160	SA 16.1	SA 16.2
	F14/F16	G½/G3	80/160	SA 14.5 / SA 16.1	SA 14.6 / SA 16.2
GST 40.1	F25	G4	300	SA 25.1	SA 25.1
	F16/F25	G3/G4	160/300	SA 16.1 / SA 25.1	SA 16.2 / SA 25.1
	F16	G3	160	SA 16.1	SA 16.2

1) For max. output torque
2) Conversion factor from output torque to input torque to determine the actuator size
3) When using protection tube for rising valve stem, otherwise larger diameter possible
4) Gearbox without output shaft and without mounting flange for actuator
5) Without spigot
6) Standard flanges according to EN ISO 5210

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Use

For motor or manual operation of valves (e.g. gate valves and globe valves).

Features and functions

Type of duty	Short-time duty S2 - 15 min (open-close duty) Intermittent duty S4 - 25 % (modulating duty)
Direction of rotation	Standard: Clockwise rotation at input shaft results in clockwise rotation at output shaft Option: GST 10.1 – GST 30.1 Reversal of rotation direction using a reversing gearbox GW 14.1
Stages	Single stage: GST 10.1 – GST 16.1 Double stage: GST 25.1 – GST 40.1
Input shaft	GST 10.1 – GST 40.1: For standard reduction ratios, the input shaft is made of stainless steel. Exceptions: GST 16.1 5,6 : 1 GST 40.1 22 : 1 and 16 : 1 Standard: Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1) Option ⁷⁾ : Square: - tapered (DIN 3233) - cylindrical

Operation

Motor operation	With electric multi-turn actuator, directly Flanges for mounting the multi-turn actuator (refer to table on page 1)
Manual operation	Possible handwheel diameters (refer to table on page 1) Standard: Without ball handle Options: - With ball handle - Material GJL-200 - Remote extension shaft (not included in AUMA's scope of delivery)

Valve attachment

Output drive types	A, B1, B2, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338 Special output drive types: AF, AK, AG, IB1, IB3, IB4
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Service conditions

Mounting position	Any position
Enclosure protection in accordance with EN 60529 ⁸⁾	Standard: IP 67 Option: IP 68 (max. 6 m head of water)
Corrosion protection	Standard: KN: Suitable for installation in industrial units, in water or power plants with a low pollutant concentration Options: KS Suitable for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. in waste water treatment plants, chemical industry) KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Finish coating	Standard: Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037) if finish painted Option: Other colours on request
Ambient temperature	Standard: -40 °C to +80 °C Options: -60 °C to +60 °C, version EL -0 °C to +120 °C, version H
Lifetime	Open-close duty: Operations (OPEN - CLOSE - OPEN) with 30 turns per stroke GST 10.1: 20,000 operations GST 14.1 – 16.1: 15,000 operations GST 25.1 – 30.1: 10,000 operations GST 35.1 – 40.1: 5,000 operations Modulating duty ⁹⁾ : GST 10.1: 5.0 million modulating steps GST 14.1 – 16.1: 3.5 million modulating steps GST 25.1 – 30.1: 2.5 million modulating steps

7) With respect to size, please contact AUMA.

8) Refer to information sheet "Gearboxes in enclosure protection IP 68 (submersible)"

9) The lifetime for modulating duty depends on the load and the number of starts. A high starting frequency will rarely improve the modulating accuracy. To reach the longest possible maintenance and fault-free operating time, the number of starts per hour chosen should be as low as permissible for the process.

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Accessories	
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Limit switching device	WSH limit switching device for manually operated valves. For signalling intermediate and end positions. (refer to separate data sheet)
Reversing gearboxes	GW reversing gearbox for reversing the rotational direction for manual and motor operation

Special features for use in potentially explosive atmospheres	
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Explosion protection in accordance with ATEX 94/9/EC	Standard: II2G c IIC T4 II2D c T130 °C Options: II2G c IIC T3 II2D c T190 °C IM2 c
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Type of duty ⁹⁾	During open-close duty: Short-time duty S2 - 15 min with the following average output torques:																																																																														
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Type</th> <th colspan="3">GST 10.1</th> <th colspan="3">GST 14.1</th> <th colspan="3">GST 14.5</th> <th colspan="3">GST 16.1</th> </tr> </thead> <tbody> <tr> <td>Reduction ratio</td> <td>1 : 1</td> <td>1,4 : 1</td> <td>2 : 1</td> <td>1,4 : 1</td> <td>2 : 1</td> <td>2,8 : 1</td> <td>2 : 1</td> <td>2,8 : 1</td> <td>4 : 1</td> <td>2,8 : 1</td> <td>4 : 1</td> <td>5,6 : 1</td> </tr> <tr> <td>Average output torque in Nm</td> <td colspan="3">60</td> <td colspan="3">125</td> <td>150</td> <td>150</td> <td>250</td> <td>300</td> <td>500</td> <td>500</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Type</th> <th colspan="3">GST 25.1</th> <th colspan="3">GST 30.1</th> <th colspan="3">GST 35.1</th> <th colspan="3">GST 40.1</th> </tr> </thead> <tbody> <tr> <td>Reduction ratio</td> <td>4 : 1</td> <td>5,6 : 1</td> <td>8 : 1</td> <td>5,6 : 1</td> <td>8 : 1</td> <td>11 : 1</td> <td>8 : 1</td> <td>11 : 1</td> <td>16 : 1</td> <td>11 : 1</td> <td>16 : 1</td> <td>22 : 1</td> </tr> <tr> <td>Average output torque in Nm</td> <td colspan="3">1,000</td> <td colspan="3">2,000</td> <td colspan="3">4,000</td> <td colspan="3">8,000</td> </tr> </tbody> </table>	Type	GST 10.1			GST 14.1			GST 14.5			GST 16.1			Reduction ratio	1 : 1	1,4 : 1	2 : 1	1,4 : 1	2 : 1	2,8 : 1	2 : 1	2,8 : 1	4 : 1	2,8 : 1	4 : 1	5,6 : 1	Average output torque in Nm	60			125			150	150	250	300	500	500	Type	GST 25.1			GST 30.1			GST 35.1			GST 40.1			Reduction ratio	4 : 1	5,6 : 1	8 : 1	5,6 : 1	8 : 1	11 : 1	8 : 1	11 : 1	16 : 1	11 : 1	16 : 1	22 : 1	Average output torque in Nm	1,000			2,000			4,000			8,000		
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	During modulating duty: Intermittent duty S4 - 25 % with modulating torque																																																																														

Ambient temperature	Standard: -40 °C to +40 °C (II2G c IIC T4; II2D c T130 °C) -40 °C to +60 °C (II2G c IIC T4; II2D c T130 °C) -60 °C to +60 °C (II2G c IIC T4; II2D c T130 °C) Options: -40 °C to +80 °C (II2G c IIC T3; II2D c T190 °C) 0 °C to +120 °C (II2G c IIC T3; II2D c T190 °C) -20 °C to +40 °C (IM2 c)
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Further information	
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Reference documents	Bevel gearboxes GK 10.2 – GK 40.2; GST 10.1 – GST 40.1 Dimensions GST 10.1 - GST 40.1 Technical data SA/SAR Technical data GW Technical data WSH
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10) The type of duty must not be exceeded.

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