

Technical data Multi-turn gearboxes

Possible combinations with multi-turn actuators					
Gearbox	Reduction ratio	Suitable AUMA multi-turn actuator ⁵⁾	Input mounting flange for mounting multi-turn actuator		Permissible actuator weight
			EN ISO 5210	DIN 3210	
					Max. [kg]
GST 10.1	1:1	SA 10.2/SAR 10.2 SA 14.2/SAR 14.2	F10 F14	G0 G1/2	40 80
	1.4:1	SA 10.2/SAR 10.2	F10	G0	40
	2:1	SA 07.6/SAR 07.6 SA 10.2/SAR 10.2	F10	G0	40
GST 14.1	1.4:1	SA 14.2/SAR 14.2	F14	G1/2	80
	2:1	SA 10.2/SAR 10.2 SA 14.2/SAR 14.2	F10 F14	G0 G1/2	40 80
	2.8:1	SA 10.2/SAR 10.2	F10	G0	40
	4:1 ⁵⁾	SA 10.2/SAR 10.2	F10	G0	40
GST 14.5	2:1	SA 14.2/SAR 14.2 SA 14.6	F14	G1/2	80
	2:1 ⁵⁾	SA 14.2	F14	G1/2	80
	2.8:1	SA 14.2/SAR 14.2	F14	G1/2	80
	2.8:1 ⁵⁾	SA 14.2	F14	G1/2	80
	4:1	SA 10.2/SAR 10.2 SA 14.2/SAR 14.2	F10 F14	G0 G1/2	40 80
GST 16.1	2.8:1	SA 14.6/SAR 14.6	F14	G1/2	80
	2.8:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
	4:1	SA 14.2/SAR 14.2 SA 14.6/SAR 14.6	F14	G1/2	80
	4:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
	5.6:1	SA 14.2/SAR 14.2	F14	G1/2	80
	5.6:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
GST 25.1	3:1	SA 14.6/SAR 14.6 SA 16.2/SAR 16.2	F14 F16	G1/2 G3	80 160
	4:1	SA 14.6/SAR 14.6 SA 16.2/SAR 16.2	F14 F16	G1/2 G3	80 160
	5,6:1	SA 14.6/SAR 14.6	F14	G1/2	80
	8:1	SA 14.2/SAR 14.2 SA 14.6	F14	G1/2	80
	3.28:1 ⁵⁾	SA 16.2/SAR 16.2	F16	G3	160
GST 30.1	5.6:1	SA 16.2/SAR 16.2	F16	G3	160
	5.6:1 ⁵⁾	SA 16.2/SAR 16.2	F16	G3	160
	8:1	SA 14.6/SAR 14.6 SA 16.1	F14 F16	G1/2 G3	80 160
	11:1	SA 14.6/SAR 14.6	F14	G1/2	80
	7:1 ⁵⁾	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
GST 35.1	8:1	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
	8:1 ⁵⁾	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
	9.25:1 ⁵⁾	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
	11:1	SA 16.2	F16	G3	160
	11:1 ⁵⁾	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
	16:1	SA 14.6 SA 16.2	F14 F16	G1/2 G3	80 160
	8:1 ⁵⁾	SA 25.1	F25	G4	300
	11:1	SA 25.1 SA 16.2	F25 F16	G4 G3	300 160
GST 40.1	11:1 ⁵⁾	SA 25.1	F25	G4	300
	14.33:1 ⁵⁾	SA 16.2	F16	G3	160
	16:1	SA 16.2 SA 25.1	F16 F25	G3 G4	160 300
	22:1	SA 16.2	F16	G3	160

5) – 6) Refer to notes on page 3.

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General information

Spur gearboxes for motor or manual operation of valves (e.g. gate valves and globe valves).

Notes to table on pages 1 + 2

1) Factor	Conversion factor from output torque to input torque to determine the actuator size For new gearboxes, input torques increased by 15 % are required due to lower efficiency.
2) Input shaft	Depending on the required input torque
3) Weight	Specified weight includes output drive sleeve (without bore) and grease filling in the gear housing
Max. valve torque for modulating torque	Modulating torque = permissible, average torque for modulating duty
5) Special reduction ratio	On request
6) Multi-turn actuator flange	Standard flange according to EN ISO 5210

Features and functions

Type of duty	<ul style="list-style-type: none"> 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 drive
	Option: GST 10.1 – GST 30.1: Reversal of direction of rotation by reversing gearbox GW 14.1
Stages	Single stage: GST 10.1 – GST 16.1
	Double stage: GST 25.1 – GST 40.1
Input shaft	For standard reduction ratio, the input shaft is made of stainless steel.
	Exception: 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), without second shaft end
	Options: Square: <ul style="list-style-type: none"> conical (DIN 3233) cylindrical
With respect to size, please contact AUMA	
<ul style="list-style-type: none"> Input shaft with second shaft end Input shaft with second shaft end and protective cap 	

Operation

Motor operation	<ul style="list-style-type: none"> Directly via electric multi-turn actuator Input mounting flanges for multi-turn actuator (refer to table page 2) 																																																	
Manual operation	Available handwheel diameters according to EN 12570, selection according to output torque:																																																	
	<table border="1"> <thead> <tr> <th>Type</th> <th colspan="3">GST 10.1</th> <th colspan="4">GST 14.1</th> <th colspan="3">GST 14.5</th> <th colspan="5">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>4:1</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> <td>2.8:1</td> <td>4:1</td> <td>5.6:1</td> </tr> <tr> <td>Handwheel Ø [mm]</td> <td colspan="3">200</td> <td colspan="2">315</td> <td colspan="2">250</td> <td colspan="3">315</td> <td colspan="2">400</td> <td colspan="3">315</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	4:1	2:1	2.8:1	4:1	2.8:1	4:1	5.6:1	2.8:1	4:1	5.6:1	Handwheel Ø [mm]	200			315		250		315			400		315		
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	Handwheel Ø [mm]	200			315		250		315			400		315																																				
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Handwheel Ø [mm]	500																																																	
Standard:	<ul style="list-style-type: none"> Handwheel made of aluminium Handwheel with ball handle 																																																	
Options:	<ul style="list-style-type: none"> Handwheel made of GJL-200 Handwheel lockable WSH limit switching device for signalling position and end positions 																																																	

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Valve attachment	
Valve attachment	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

Service conditions	
Mounting position	Any position
Ambient temperature	Standard: -40 °C to +80 °C
	Options: -60 °C to +60 °C 0 °C to +120 °C
Enclosure protection according to EN 60529	Standard: IP68-8, dust and water tight up to max. 8 m head of water
	Options: IP68-10, dust and water tight up to max. 10 m head of water IP68-20, dust and water tight up to max. 20 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 use in areas with high salinity, almost permanent condensation, and high pollution.
	KX Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Paint	Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request
Lifetime	AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.

Accessories	
Reversing gearbox	<ul style="list-style-type: none"> GW reversing gearbox for reversal of rotation direction for manual and motor operation

Special features for use in potentially explosive atmospheres																																									
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																																								
Type of duty	Open-close duty: Short-time duty S2 - 15 min with the following average output torques:																																								
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Average output torque in [Nm]	1,000				2,000			4,000			8,000																														
Modulating duty: Intermittent duty S4 – 25 % with modulating torque																																									

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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)

Further information	
EU Directives	ATEX Directive: (94/9/EC) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Brochure Electric actuators for the automation of valves in the oil and gas industry Dimensions GST 10.1 – GST 40.1 Technical data SA 07.2 – SA 16.2 with 3-phase AC motors Technical data SAR 07.2 – SAR 16.2 with 3-phase AC motors Technical data WSH 10.2 – WSH 16.2 Technical data GW 14.1