

Technical data Multi-turn gearboxes

Valve				Gearbox							
Max. valve torque		Valve attachment		Gearbox	Reduction ratio	Factor ¹⁾	Max. input torques		Input shaft ²⁾		Weight ³⁾ [kg]
Nominal torque [Nm]	Modulating torque ⁴⁾ [Nm]	Standard EN ISO 5210	Option DIN 3210				Nominal torque [Nm]	Modulating torque [Nm]	Standard [mm]	Option [mm]	
120	60	F10	G0	GK 10.2	1:1	0.9	135	66	20	–	8.5
					2:1	1.8	67	33	20	–	
250	120	F14	G1/2	GK 14.2	2:1	1.8	139	66	20	30	15
					2.8:1	2.5	100	48	20	30	
500	200	F14	G1/2	GK 14.6	2.8:1	2.5	198	80	30	–	15
					4:1	3.6	139	55	20	30	
450	400	F16	G3	GK 16.2	1:1 ⁵⁾	0.9	500	444	30	40	25
800					2.8:1 ⁵⁾	2.5	320	160	30	–	
1,000					4:1	3.6	278	111	30	–	
500					4:1 ⁵⁾	3.6	140	111	20	–	
1,000					5.6:1	5.0	198	80	30	–	
700					5.6:1 ⁵⁾	5.0	140	80	20	–	
2,000	800	F25	G4	GK 25.2	5.6:1	5.0	397	160	30	30	60
4,000					8:1	7.2	278	111	30	30	
2,800	1,600	F30	G5	GK 30.2	5.6:1 ⁵⁾	5.0	800	320	40	–	110
4,000					5.6:1 ⁵⁾	5.0	560	320	30	–	
					8:1	7.2	556	222	30	30	
8,000	–	F35	G6	GK 35.2	11:1	9.9	404	162	30	30	190
					8:1 ⁵⁾	7.2	1,111	–	40	–	
					11:1	9.9	808	–	40	–	
16,000	–	F40	G7	GK 40.2	16:1	14.4	556	–	40	30	250
					16:1	14.4	1,111	–	40	–	
					22:1	19.8	808	–	40	–	
10,000	–	F40	G7	GK 40.2	22:1 ⁵⁾	19.8	505	–	30	–	
10,000					22:1 ⁵⁾	19.8	505	–	30	–	

1) – 5) Refer to notes on page 3.

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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 Max. [kg]
			EN ISO 5210	DIN 3210	
GK 10.2	1:1	SA 10.2/SAR 10.2	F10	G0	40
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 10.2	2:1	SA 07.6/SAR 07.6	F10	G0	40
		SA 10.2/SAR 10.2			
GK 14.2	2:1	SA 10.2/SAR 10.2	F10	G0	40
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 14.2	2.8:1	SA 10.2/SAR 10.2	F10	G0	40
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 14.6	2.8:1	SA 10.2/SAR 10.2	F10	G0	40
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 14.6	4:1	SA 10.2/SAR 10.2	F10	G0	40
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 16.2	1:1 ⁵⁾	SA 14.6/SAR 14.6	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 16.2	2.8:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 16.2	4:1	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 16.2	4:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 16.2	5.6:1	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 16.2	5.6:1 ⁵⁾	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.2/SAR 14.2	F14	G1/2	80
GK 25.2	5.6:1	SA 14.6/SAR 14.6	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 25.2	8:1	SA 14.2/SAR 14.2	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 30.2	5.6:1 ⁵⁾	SA 16.2/SAR 16.2	F16	G3	160
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 30.2	5.6:1 ⁵⁾	SA 16.2/SAR 16.2	F16	G3	160
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 30.2	8:1	SA 16.2/SAR 16.2	F16	G3	160
		SA 16.2/SAR 16.2	F16	G3	160
GK 30.2	11:1	SA 14.6/SAR 14.6	F14	G1/2	80
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 35.2	8:1 ⁵⁾	SA 16.2/SAR 16.2	F16	G3	160
		SA 25.1/SAR 25.1	F25	G4	300
GK 35.2	11:1	SA 16.2/SAR 16.2	F16	G3	160
		SA 14.6/SAR 14.6	F14	G1/2	80
GK 35.2	16:1	SA 16.2/SAR 16.2	F16	G3	160
		SA 16.2/SAR 16.2	F16	G3	160
GK 40.2	16:1	SA 16.2/SAR 16.2	F16	G3	160
		SA 25.1/SAR 25.1	F25	G4	300
GK 40.2	22:1	SA 16.2/SAR 16.2	F16	G3	160
		SA 16.2/SAR 16.2	F16	G3	160
GK 40.2	22:1 ⁵⁾	SA 14.6/SAR 14.6	F14	G1/2	80
		SA 16.2/SAR 16.2	F16	G3	160

5) – 6) Refer to notes on page 3.

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General information

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 coupling (without bore) and grease filling in the gear housing
4) 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
	Options: <ul style="list-style-type: none"> GK 10.2 – GK 25.2: Reversal of direction of rotation by reversing gearbox GW 14.1 GK 30.2 – GK 40.2: Clockwise rotation possible as an alternative
Stages	Single stage: GK 10.2 – GK 25.2
	Double stage: GK 30.2 – GK 40.2
Input shaft	Input shaft made of stainless steel
	Standard: Cylindrical with parallel key according to DIN 6885-1 (refer to table on page 1)
	Option: Square: <ul style="list-style-type: none"> conical (DIN 3233) cylindrical
	With respect to size, please contact AUMA

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="2">GK 10.2</th> <th colspan="2">GK 14.2</th> <th colspan="3">GK 14.6</th> <th colspan="5">GK 16.2</th> </tr> </thead> <tbody> <tr> <td>Reduction ratio</td> <td>1:1</td> <td>2:1</td> <td>2:1</td> <td>2.8:1</td> <td>2.8:1</td> <td>2.8:1</td> <td>4:1</td> <td>1:1</td> <td>2.8:1</td> <td>4:1</td> <td>4:1</td> <td>5.6:1</td> <td>5.6:1</td> </tr> <tr> <td>Standard hand-wheel Ø [mm]</td> <td>315</td> <td>200</td> <td>315</td> <td>200</td> <td>315</td> <td>400</td> <td>315</td> <td>800</td> <td>630</td> <td>315</td> <td>500</td> <td>315</td> <td>400</td> </tr> <tr> <td>Special hand-wheel Ø [mm]</td> <td colspan="2">400</td> <td colspan="2">400</td> <td>400</td> <td>800</td> <td>400</td> <td colspan="2">800</td> <td>400</td> <td colspan="3">800</td> </tr> </tbody> </table>	Type	GK 10.2		GK 14.2		GK 14.6			GK 16.2					Reduction ratio	1:1	2:1	2:1	2.8:1	2.8:1	2.8:1	4:1	1:1	2.8:1	4:1	4:1	5.6:1	5.6:1	Standard hand-wheel Ø [mm]	315	200	315	200	315	400	315	800	630	315	500	315	400	Special hand-wheel Ø [mm]	400		400		400	800	400	800		400	800		
	Type	GK 10.2		GK 14.2		GK 14.6			GK 16.2																																															
	Reduction ratio	1:1	2:1	2:1	2.8:1	2.8:1	2.8:1	4:1	1:1	2.8:1	4:1	4:1	5.6:1	5.6:1																																										
	Standard hand-wheel Ø [mm]	315	200	315	200	315	400	315	800	630	315	500	315	400																																										
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	Type	GK 25.2		GK 30.2				GK 35.2			GK 40.2																																													
	Reduction ratio	5.6:1	8:1	5.6:1	5.6:1	8:1	11:1	8:1	11:1	16:1	16:1	22:1	22:1																																											
	Standard hand-wheel Ø [mm]	630	500	800				800			800																																													
Special hand-wheel Ø [mm]	800		800				800			800																																														
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 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 installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmospheres with a moderate pollutant concentration (e.g. wastewater treatments plants, chemical industry)
	KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Paint	Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Other colours are possible on request.
Lifetime	Open-close duty: Operations (OPEN - CLOSE - OPEN) with 30 turns per stroke
	GK 10.2: 20,000 operations
	GK 14.2 – GK 16.2: 15,000 operations
	GK 25.2 – GK 30.2: 10,000 operations
	GK 35.2 – GK 40.2: 5,000 operations
	AUMA multi-turn gearboxes meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.
	Modulating duty:
GK 10.2: 5.0 million modulating steps	
GK 14.2 – GK 16.2: 3.5 million modulating steps	
GK 25.2 – GK 30.2: 2.5 million modulating steps	
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.	
Accessories	
Reversing gearbox	• 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

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Type of duty	Open-close duty:	Short-time duty S2 - 15 min with the following average output torques:							
	Type	GK 10.2		GK 14.2		GK 14.6		GK 16.2	
	Reduction ratio	1:1	2:1	2:1	2.8:1	2.8:1	4:1	4:1	5.6:1
	Average output torque in [Nm]	40	60	125		150	250	300	500
	Type	GK 25.2		GK 30.2		GK 35.2		GK 40.2	
	Reduction ratio	5.6:1	8:1	8:1	11:1	11:1	16:1	16:1	22:1
	Average output torque in [Nm]	600	1,000	2,000		4,000		8,000	
	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)							

Further information

EU Directives	ATEX Directive: (94/9/EC) Machinery Directive: (2006/42/EC)
Reference documents	Product description Electric actuators for industrial valve automation Dimensions GK 10.2 – GK 40.2 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