

Spur Gearheads

15 mNm

For combination with
DC-Micromotors
Brushless DC-Motors
Stepper Motors

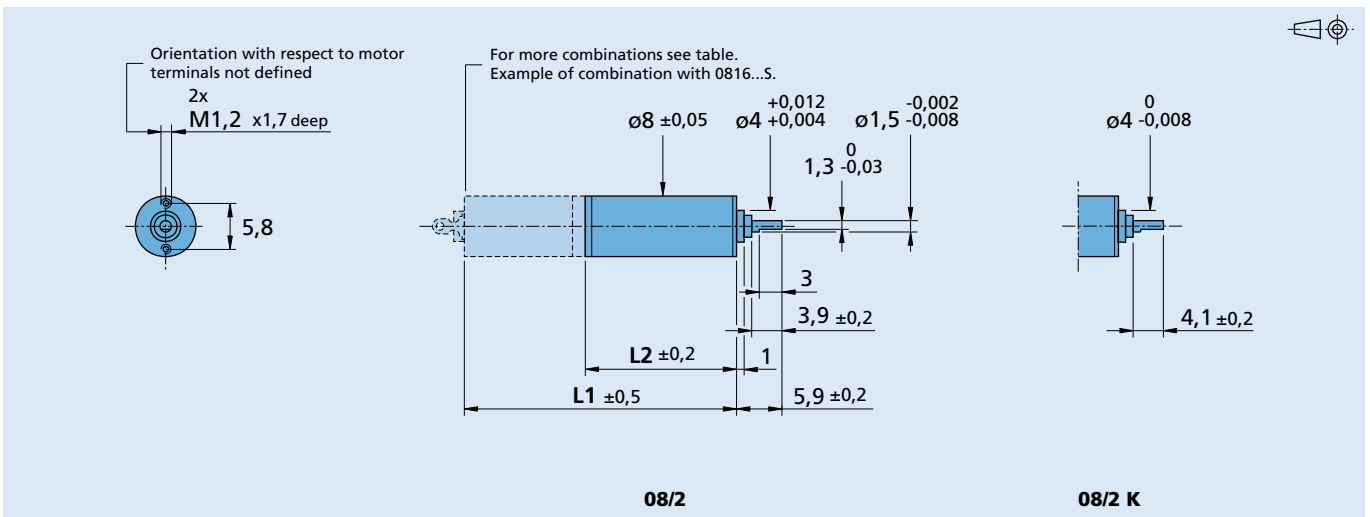
Series 08/2

	08/2	08/2K
Housing material	metal	metal
Geartrain material	metal	metal
Recommended max. input speed for:		
– continuous operation	8 000 min ⁻¹	8 000 min ⁻¹
Backlash, at no-load	≤ 5 °	≤ 5 °
Bearings on output shaft	sintered bearings	ball bearings
Shaft load, max.:		
– radial (4,5 mm from mounting face)	≤ 0,8 N	≤ 5 N
– axial	≤ 1 N	≤ 3 N
Shaft press fit force, max.	≤ 5 N	≤ 5 N
Shaft play		
– radial (4,5 mm from mounting face)	≤ 0,06 mm	≤ 0,06 mm
– axial	≤ 0,1 mm	≤ 0,05 mm
Operating temperature range	- 30 ... + 100 °C	- 30 ... + 100 °C

Specifications

		2	3	4	5	6	7	8	9
Number of gear stages									
Continuous torque	mNm	15	15	15	15	15	15	15	15
Intermittent torque	mNm	25	25	25	25	25	25	25	25
Mass without motor, ca.	g	3,2	3,4	3,6	3,8	4	4,2	4,4	4,6
Efficiency, max.	%	94	90	86	81	77	74	70	66
Direction of rotation, drive to output		=	≠	=	≠	=	≠	=	≠
Reduction ratio ¹⁾ (rounded)		4:1	9,4:1	21,9:1	51,2:1	120:1	279:1	650:1	1 518:1
L2 [mm] = length without motor		12,0	13,4	15,2	17,0	18,8	20,6	22,4	24,2
L1 [mm] = length with motor	0816D...SR	27,9	29,3	31,1	32,9	34,7	36,5	38,3	40,1
	0824D...B	36,1	37,5	39,3	41,1	42,9	44,7	46,5	48,3
	AM0820...-12	25,8	27,2	29,0	30,8	32,6	34,4	36,2	38,0

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.



Spur Gearheads

0,03 Nm

For combination with
DC-Micromotors
Brushless DC-Motors
Stepper Motors

Series 12/3

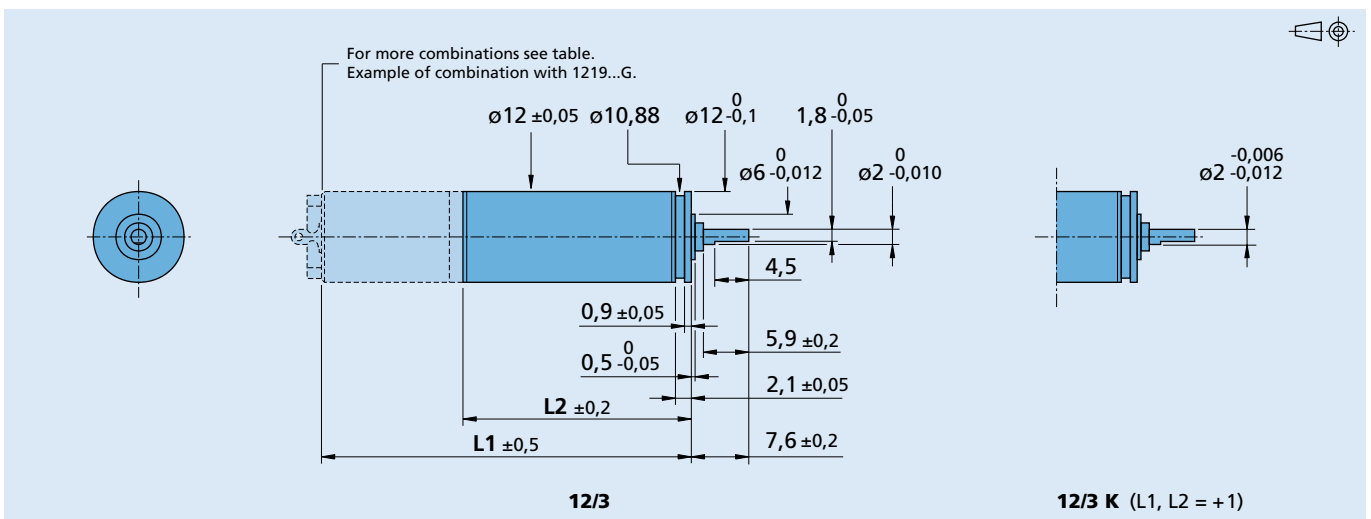
	12/3	12/3K
Housing material	metal	metal
Geartrain material	metal	metal
Recommended max. input speed for:		
– continuous operation	5 000 min ⁻¹	5 000 min ⁻¹
Backlash, at no-load	≤ 3 °	≤ 3 °
Bearings on output shaft	sintered bearings	ball bearings
Shaft load, max.:		
– radial (4,5 mm from mounting face)	≤ 3 N	≤ 5 N
– axial	≤ 2 N	≤ 10 N
Shaft press fit force, max.	≤ 10 N	≤ 10 N
Shaft play		
– radial (4,5 mm from mounting face)	≤ 0,06 mm	≤ 0,08 mm
– axial	≤ 0,1 mm	≤ 0,05 mm
Operating temperature range	- 30 ... + 100 °C	- 30 ... + 100 °C

Specifications

	3	4	5	6	7	8	9	10	11
Number of gear stages	3	4	5	6	7	8	9	10	11
Continuous torque	mNm 6	8	10	20	30	30	30	30	30
Intermittent torque	mNm 100	100	100	100	100	100	100	100	100
Mass without motor, ca.	g 9	10	11	12	13	14	15	16	17
Efficiency, max.	% 90	86	81	77	74	70	66	63	60
Direction of rotation, drive to output	≠	=	≠	=	≠	=	≠	=	≠
Reduction ratio ¹⁾ (rounded)	9,17:1	20,6:1	46,4:1	104,4:1	235:1	529:1	1 190:1	2 677:1	6 023:1
L2 [mm] = length without motor	15,4	17,5	19,6	21,7	23,8	25,9	28,0	30,1	32,2
L1 [mm] = length with motor	1016E...G 31,1	1016E...G 33,2	1016E...G 35,3	1016E...G 37,4	1016E...G 39,5	1016E...G 41,6	1016E...G 43,7	1016E...G 45,8	1016E...G 47,9
	1024E...S 39,1	1024E...S 41,2	1024E...S 43,3	1024E...S 45,4	1024E...S 47,5	1024E...S 49,6	1024E...S 51,7	1024E...S 53,8	1024E...S 55,9
	1219E...G 34,1	1219E...G 36,2	1219E...G 38,3	1219E...G 40,4	1219E...G 42,5	1219E...G 44,6	1219E...G 46,7	1219E...G 48,8	1219E...G 50,9
	1224E...SR 39,6	1224E...SR 41,7	1224E...SR 43,8	1224E...SR 45,9	1224E...SR 48,0	1224E...SR 50,1	1224E...SR 52,2	1224E...SR 54,3	1224E...SR 56,4
	1028E...B 43,5	1028E...B 45,6	1028E...B 47,7	1028E...B 49,8	1028E...B 51,9	1028E...B 54,0	1028E...B 56,1	1028E...B 58,2	1028E...B 60,3
	1218E...B 33,4	1218E...B 35,5	1218E...B 37,6	1218E...B 39,7	1218E...B 41,8	1218E...B 43,9	1218E...B 46,0	1218E...B 48,1	1218E...B 50,2
	1226E...B 41,4	1226E...B 43,5	1226E...B 45,6	1226E...B 47,7	1226E...B 49,8	1226E...B 51,9	1226E...B 54,0	1226E...B 56,1	1226E...B 58,2
	ADM12205...-57 32,8	ADM12205...-57 34,9	ADM12205...-57 37,0	ADM12205...-57 39,1	ADM12205...-57 41,2	ADM12205...-57 43,3	ADM12205...-57 45,4	ADM12205...-57 47,5	ADM12205...-57 49,6

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 13 552:1 to 154 368:1 are available on request.



Spur Gearheads

0,1 Nm

For combination with
DC-Micromotors
Stepper Motors

Series 15/5

	15/5
Housing material	metal
Geartrain material ¹⁾	plastic/steel
Recommended max. input speed for:	
– continuous operation	5 000 min ⁻¹
Backlash, at no-load	≤ 3 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 25 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 5 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,03 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

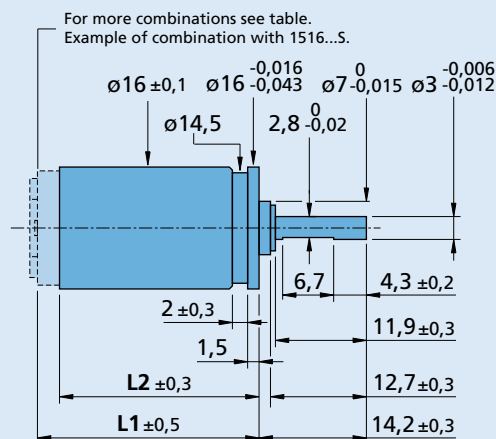
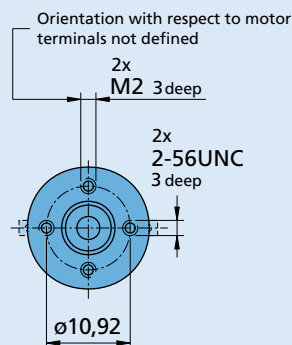
Specifications

	2	3	4	4	5	5	6	6	7	
Number of gear stages										
Continuous torque	mNm	60	60	100	100	100	100	100	100	
Intermittent torque	mNm	150	150	300	150	300	150	300	150	
Mass without motor, ca.	g	17	19	21	21	22	24	24	25	
Efficiency, max.	%	81	73	66	66	59	53	53	48	
Direction of rotation, drive to output		=	≠	=	=	≠	≠	=	≠	
Reduction ratio ²⁾ (rounded)		6,3:1 11,8:1	22:1 41:1	76:1	141:1	262:1	485:1	900:1	1 670:1	3 101:1
L2 [mm] = length without motor		26,2	29,9	32,0	32,0	34,1	34,1	36,2	36,2	38,3
L1 [mm] = length with motor										
	1319E...SR	32,5	36,2	38,3	38,3	40,4	40,4	42,5	42,5	44,6
	1331E...SR	44,5	48,2	50,3	50,3	52,4	52,4	54,5	54,5	56,6
	1516E...S	29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
	1516E...SR	29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
	1524E...SR	37,1	40,8	42,9	42,9	45,0	45,0	47,1	47,1	49,2
	AM1524...-57	29,7	33,4	35,5	35,5	37,6	37,6	39,7	39,7	41,8

¹⁾ Gearheads with ratios < 3 101:1 have all steel gears.

²⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 5 752:1 to 235 067:1 are available on request.



15/5

Spur Gearheads

0,1 Nm

For combination with
DC-Micromotors
Stepper Motors

Series 15/5 S

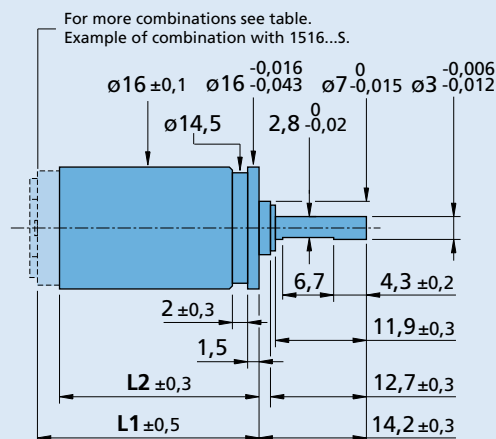
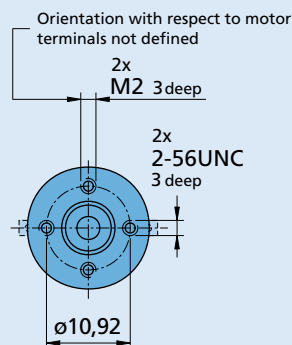
	15/5 S
Housing material	metal
Geartrain material	steel
Recommended max. input speed for: – continuous operation	5 000 min ⁻¹
Backlash, at no-load	≤ 3 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 25 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 5 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,03 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

Specifications

	2	3	4	4	5	5	6	6	7
Number of gear stages									
Continuous torque	mNm 60	60	100	100	100	100	100	100	100
Intermittent torque	mNm 150	150	300	150	300	150	300	150	300
Mass without motor, ca.	g 17	19	21	21	22	22	24	24	25
Efficiency, max.	% 81	73	66	66	59	59	53	53	48
Direction of rotation, drive to output	=	≠	=	=	≠	≠	=	=	≠
Reduction ratio ¹⁾ (rounded)	6,3:1 11,8:1	22:1 41:1	76:1	141:1	262:1	485:1	900:1	1 670:1	3 101:1
L2 [mm] = length without motor	26,2	29,9	32,0	32,0	34,1	34,1	36,2	36,2	38,3
L1 [mm] = length with motor									
1319E...SR	32,5	36,2	38,3	38,3	40,4	40,4	42,5	42,5	44,6
1331E...SR	44,5	48,2	50,3	50,3	52,4	52,4	54,5	54,5	56,6
1516E...S	29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
1516E...SR	29,1	32,8	34,9	34,9	37,0	37,0	39,1	39,1	41,2
1524E...SR	37,1	40,8	42,9	42,9	45,0	45,0	47,1	47,1	49,2
AM1524...-57	29,7	33,4	35,5	35,5	37,6	37,6	39,7	39,7	41,8

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 5 752:1 to 235 067:1 are available on request.
The gearheads as S-type have all steel gears and heavy duty lubricant for extended lifetime performance.



15/5 S

Spur Gearheads

0,03 Nm

For combination with
DC-Micromotors

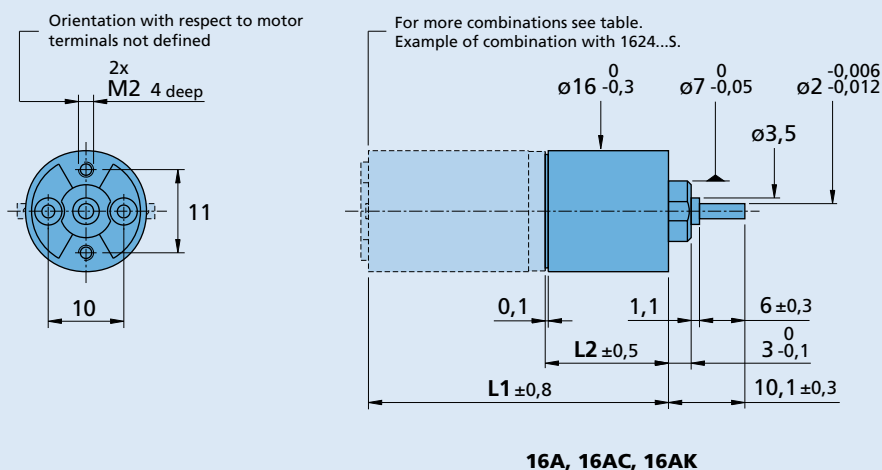
Series 16A

	16A	16AC	16AK
Housing material	plastic	plastic	plastic
Geartrain material	metal	metal	metal
Recommended max. input speed for:			
– continuous operation	5 000 min ⁻¹	5 000 min ⁻¹	5 000 min ⁻¹
Backlash, at no-load	≤ 4°	≤ 4°	≤ 4°
Bearings on output shaft	sintered bearings	ceramic bearings	ball bearings
Shaft load, max.:			
– radial (5 mm from mounting face)	≤ 2 N	≤ 6 N	≤ 10 N
– axial	≤ 1 N	≤ 2 N	≤ 5 N
Shaft press fit force, max.	≤ 10 N	≤ 10 N	≤ 10 N
Shaft play			
– radial (5 mm from mounting face)	≤ 0,05 mm	≤ 0,06 mm	≤ 0,06 mm
– axial	≤ 0,25 mm	≤ 0,25 mm	≤ 0,25 mm
Operating temperature range	- 30 ... + 65 °C	- 20 ... + 65 °C	- 30 ... + 65 °C

Specifications

	2	3	3	4	4	5	6	7
Number of gear stages								
Continuous torque	mNm 10	10	20	20	30	30	30	30
Intermittent torque	mNm 100	100	100	100	100	100	100	100
Mass without motor, ca.	g 3	4	4	4	4	5	5	6
Efficiency, max.	% 81	73	73	66	66	59	53	48
Direction of rotation, drive to output	=	≠	≠	=	=	≠	=	≠
Reduction ratio ¹⁾ (rounded)	11,9:1	22:1	41:1	76:1	141:1	262:1 485:1	900:1 1 670:1	3 101:1 5 752:1
L2 [mm] = length without motor	9,2	11,0	11,0	12,8	12,8	14,5	16,3	18,0
L1 [mm] = length with motor	1516E...S 25,0	1516E...SR 25,0	1524E...SR 33,0	1624E...S 33,0	1717E...SR 26,2	1724E...SR 33,0		

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.



Spur Gearheads

0,1 Nm

For combination with
DC-Micromotors

Series 16/5

	16/5
Housing material	metal
Geartrain material ¹⁾	plastic/steel
Recommended max. input speed for:	
– continuous operation	5 000 min ⁻¹
Backlash, at no-load	≤ 3 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 25 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 5 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,03 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

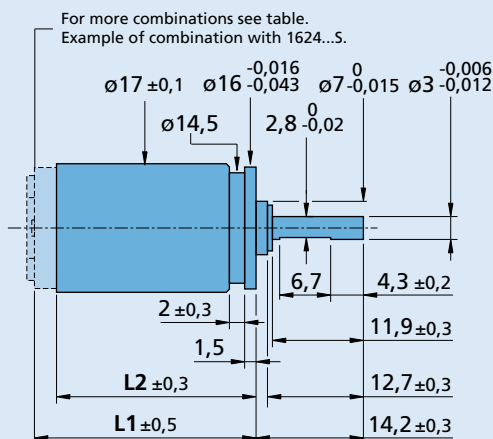
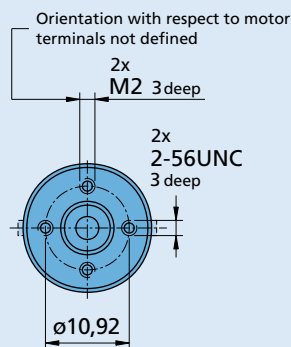
Specifications

	2	3	4	4	5	5	6	6	7
Number of gear stages									
Continuous torque	mNm 60	60	100	100	100	100	100	100	100
Intermittent torque	mNm 150	150	300	150	300	150	300	150	300
Mass without motor, ca.	g 17	19	21	21	22	22	24	24	25
Efficiency, max.	% 81	73	66	66	59	59	53	53	48
Direction of rotation, drive to output	=	≠	=	=	≠	≠	=	=	≠
Reduction ratio ²⁾ (rounded)	6,3:1 11,8:1	22:1 41:1	76:1	141:1	262:1	485:1	900:1	1 670:1	3 101:1
L2 [mm] = length without motor	26,2	29,9	32,0	32,0	34,1	34,1	36,2	36,2	38,3
L1 [mm] = length with motor 1624E...S	37,1	40,8	42,9	42,9	45,0	45,0	47,1	47,1	49,2

¹⁾ Gearheads with ratios < 3 101:1 have all steel gears.

²⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 5 752:1 to 235 067:1 are available on request.



16/5

Spur Gearheads

0,1 Nm

For combination with
DC-Micromotors

Series 16/5 S

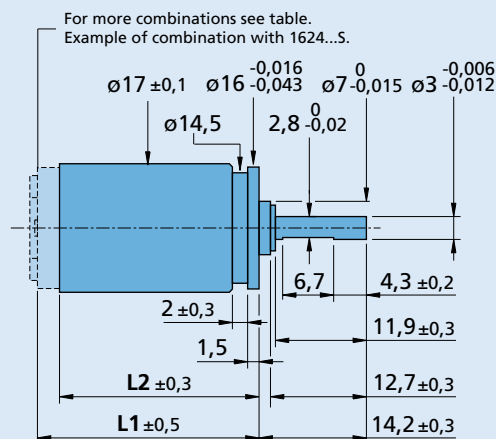
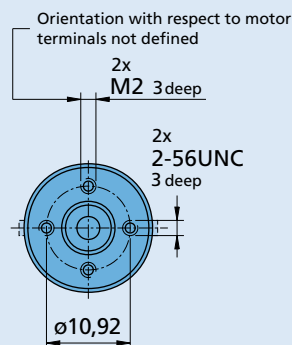
	16/5 S
Housing material	metal
Geartrain material	steel
Recommended max. input speed for: – continuous operation	5 000 min ⁻¹
Backlash, at no-load	≤ 3 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (6,5 mm from mounting face)	≤ 25 N
– axial	≤ 5 N
Shaft press fit force, max.	≤ 5 N
Shaft play	
– radial (6,5 mm from mounting face)	≤ 0,03 mm
– axial	= 0 mm
Operating temperature range	- 30 ... + 100 °C

Specifications

	2	3	4	4	5	5	6	6	7
Number of gear stages									
Continuous torque	mNm 60	60	100	100	100	100	100	100	100
Intermittent torque	mNm 150	150	300	150	300	150	300	150	300
Mass without motor, ca.	g 17	19	21	21	22	22	24	24	25
Efficiency, max.	% 81	73	66	66	59	59	53	53	48
Direction of rotation, drive to output	=	≠	=	=	≠	≠	=	=	≠
Reduction ratio ¹⁾ (rounded)	6,3:1 11,8:1	22:1 41:1	76:1	141:1	262:1	485:1	900:1	1 670:1	3 101:1
L2 [mm] = length without motor	26,2	29,9	32,0	32,0	34,1	34,1	36,2	36,2	38,3
L1 [mm] = length with motor 1624E...S	37,1	40,8	42,9	42,9	45,0	45,0	47,1	47,1	49,2

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 5 752:1 to 235 067:1 are available on request.
The gearheads as S-type have all steel gears and heavy duty lubricant for extended lifetime performance.



16/5 S

Spur Gearheads

0,1 Nm

For combination with
DC-Micromotors
Stepper Motors

Series 22/2

	22/2	22/2K
Housing material	metal	metal
Geartrain material	metal	metal
Recommended max. input speed for:		
– continuous operation	4 000 min ⁻¹	4 000 min ⁻¹
Backlash, at no-load	≤ 3 °	≤ 3 °
Bearings on output shaft	sintered bearings	ball bearings, preloaded
Shaft load, max.:		
– radial (6 mm from mounting face)	≤ 3 N	≤ 100 N
– axial	≤ 5 N	≤ 5 N
Shaft press fit force, max.	≤ 50 N	≤ 5 N
Shaft play		
– radial (6 mm from mounting face)	≤ 0,05 mm	≤ 0,03 mm
– axial	≤ 0,2 mm	= 0 mm
Operating temperature range	- 30 ... + 100 °C	- 30 ... + 100 °C

Specifications		2	3	4	5	6	7	8	9	10
Number of gear stages										
Continuous torque	mNm	100	100	100	100	100	100	100	100	100
Intermittent torque	mNm	400	400	400	400	400	400	400	400	400
Mass without motor, ca.	g	58	68	72	77	82	88	93	98	103
Efficiency, max.	%	90	86	81	73	66	59	53	48	43
Direction of rotation, drive to output		=	≠	=	≠	=	≠	=	≠	=
Reduction ratio ¹⁾ (rounded)		3,1:1 5,4:1	9,7:1	17,2:1 30,7:1	54,6:1 97,3:1	173:1 308:1	548:1 975:1	1 734:1 3 088:1	5 490:1 9 780:1	17 386:1 30 969:1
L2 [mm] = length without motor		40,8	46,6	49,5	52,4	55,3	58,2	61,1	64,0	66,9
L1 [mm] = length with motor										
	2224R...SR	45,4	50,0	53,6	56,5	59,4	62,3	65,2	68,1	71,0
	2230F/R...S	51,2	55,8	59,4	62,3	65,2	68,1	71,0	73,9	76,8
	2232R...SR	53,4	58,0	61,6	64,5	67,4	70,3	73,2	76,1	79,0
	2233F/R...S	53,8	58,4	62,0	64,9	67,8	70,7	73,6	76,5	79,4
	AM2224...-14	48,9	53,5	57,1	60,0	62,9	65,8	68,7	71,6	74,5

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

Note: Reduction ratios from 55 057:1 to 983 447:1 are available on request.

