

Planetary Gearbox UGY

Dimensions (mm)	∅ 20* x 12,7 ... 27,7
Max. torque (cNm)	30 (higher torque on request)
Ratios	4,4 ... 370 (3,8 ... 850 on request)
Standard shaft (mm)	∅ 4 with flat (others on request)
Motor combination	Stepper/Synchronous motor UA ; DC motor NF213G Other motors on requests
	* at connection ribs larger



Standard Data

Mounting	any position
Axial thrust FA	5 N
Lateral force FR	10 N (higher force on request)
Climatic class	wide spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -10 ... +55
Ambient temperature storage	°C -20 ... +80
Weight	50 ...70 g (with DC motor NF213G)
Bearing	sintered bronze, self-lubricating (ball bearing on request)

Order Reference

Example motor combination: with DC motor NF

Motor type	JP	DC Motor (brushed)	JP	2	C	N	M4	Y	04A	N	E	N
Motor size	2	diameter 24.2 mm										
Motor version	C	24 V; no-load speed 5900 rpm										
Approval	N	standard										
Voltage	M4	24 Vdc										
Gearbox size	Y	planetary gearbox diameter 20 mm										
Gear ratio	04A	4,4 (1 stage)										
Connection	N	standard										
	A	special										
Bearing/ Gear material	E	sintered bearing / plastics gear wheels										
Shaft end	N	standard shaft ∅ 4 with flat										

All specifications are representative only and maybe subject to variation. For confirmation of values, please contact Johnson Electric.
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Technical Data

Technical data of bare gearbox. Data of complete gearmotors on request

Stages	1	2	3	4
Ratios *	4,4	19,2	85	370
Max.torque **	10	20	30	30
Short peak torque **	15	30	45	45
Gear efficiency **	0,85	0,75	0,65	0,55

* Approximate values, precise values on request.

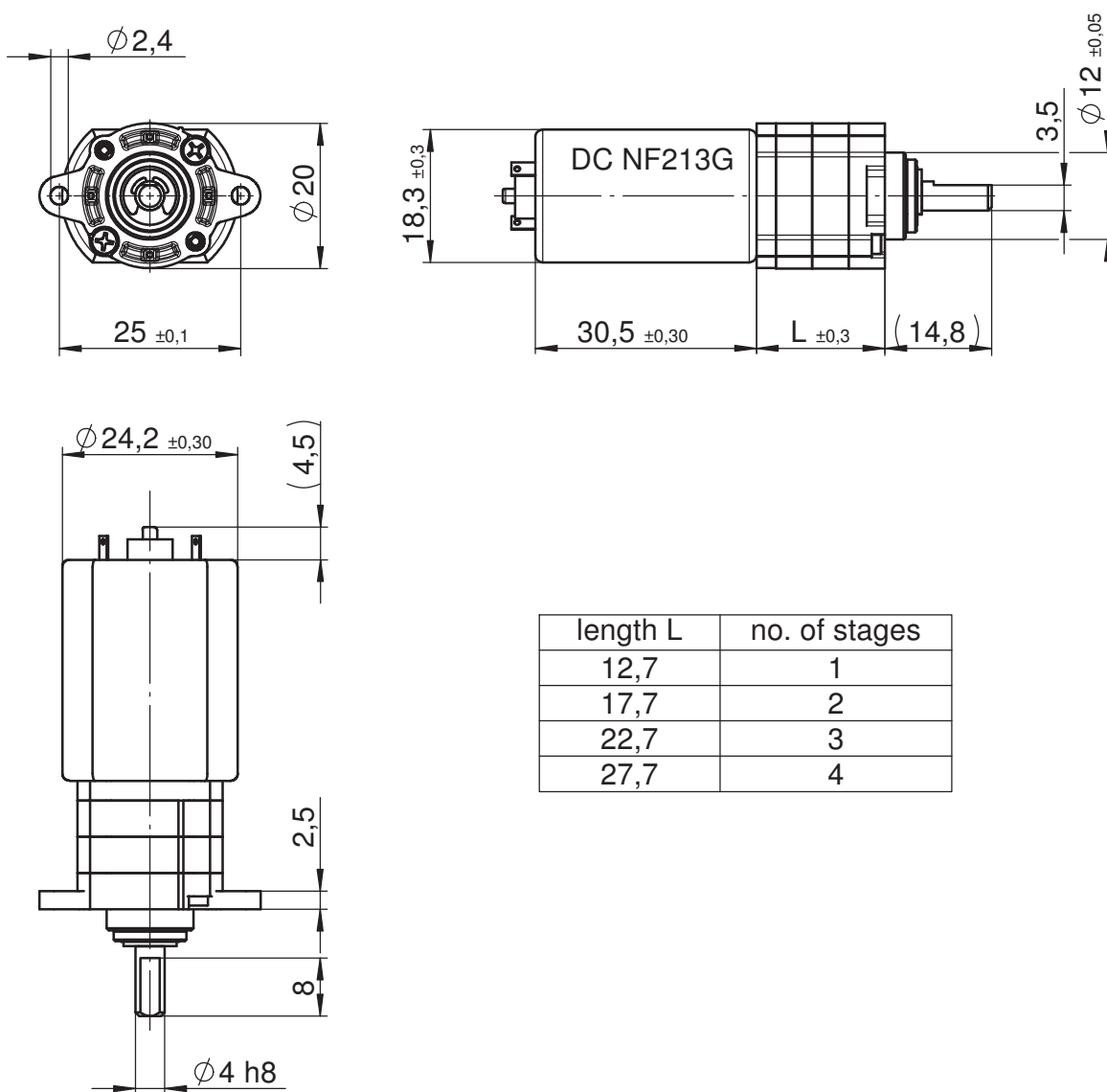
Other ratios between 3,8 ...850 on request.

** Approximate values, must be tested under specific operating conditions in application.

Higher values on request.

Dimensions

Example motor combination: with DC motor NF213G; standard shaft



length L	no. of stages
12,7	1
17,7	2
22,7	3
27,7	4

Planetary Gearbox UGW

Dimensions (mm)	∅ 34 x 62,4 (without motor)
Max. torque (Nm)	4,5 (higher torque on request)
Ratio	541 (4 stages ; other ratios on request)
Standard shaft (mm)	∅ 8 x 21,3 with flat (other dimensions on request)
Motor combinations	Stepper/Synchronous motor UC ; DC motor HC3...6



Standard Data

Mounting	any position
Axial thrust FA	20 N (depend on lifetime spec ; higher force on request)
Lateral force FR	20 N (depend on lifetime spec ; higher force on request)
Climatic class	wide spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -20 ... +70
Ambient temperature storage	°C -20 ... +80
Weight	290 g (with DC motor HC313XLG)
Bearing	sintered bronze, self-lubricating

Order Reference

Example motor combination: with DC motor HC313XLG

Note: UGW is deliverable only as gearbox motor combination

Motor type	JP	DC Motor (brushed)	JP	3	A	N	X9	W	54C	N	F	N
Motor size	3	diameter 27.5 mm										
Motor version	A	13 V; no-load speed 7400 rpm										
Approval	N	standard										
Voltage	X9	13 Vdc										
Gearbox size	W	planetary gearbox diameter 34 mm										
Gear ratio	54C	541 (4 stages)										
Connection	N	standard										
	A	special										
Bearing/ Gear material	F	sintered bearing / metal gear wheels										
Shaft end	N	standard shaft ∅ 8 x 21.3 with flat										



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Technical Data

Technical data of bare gearbox. Data of complete gearmotors on request

Stages	4
Ratio *	541
Max. torque [Nm] **	4,5
Short peak torque [Nm] **	6
Gear efficiency **	0,6

* Approximate value, precise values on request.

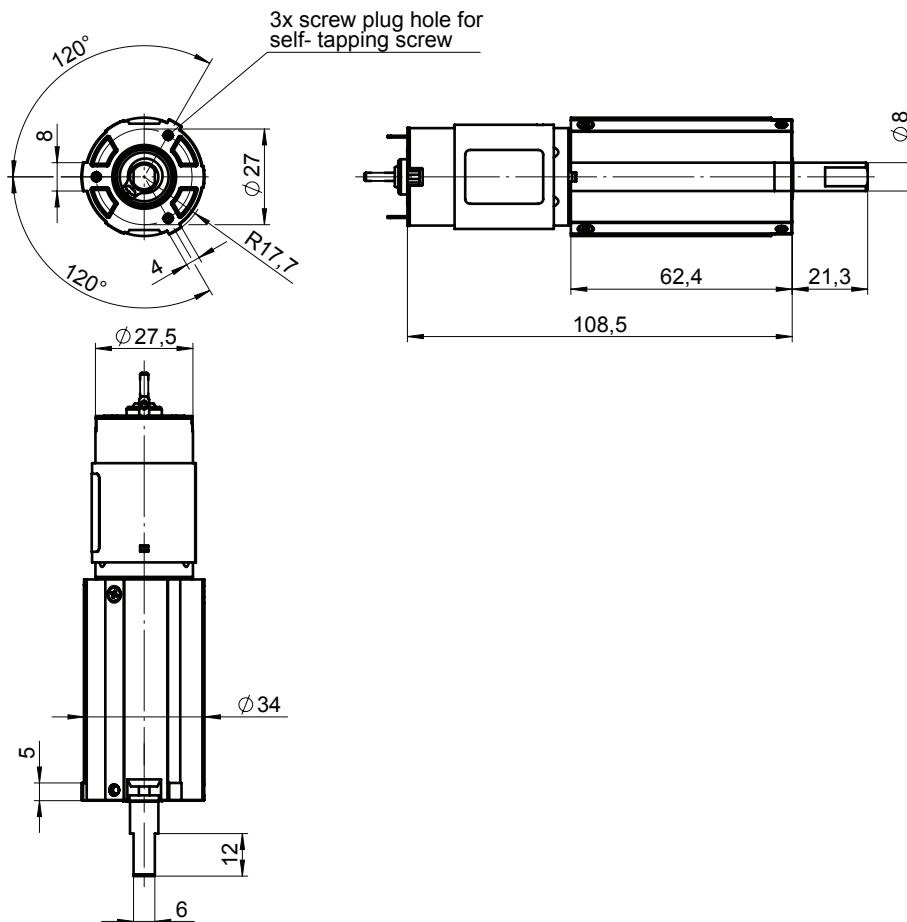
Other ratios between 3,8 ...541 on request.

** Approximate values, must be tested under specific operating conditions in application.

Higher values on request.

Dimensions

Example motor combination: with DC motor HC313XLG ; standard shaft



UGD

UGD

Dimensions (mm)	55 x 65.6
Height (mm)	13
Max. torque (cNm)	32
Ratios	4 1/6 ... 6.048.000
Internal slipping clutch	optional for ratios $\geq 33\frac{1}{3}$
Standard shaft (mm)	$\varnothing 4 \times 10$
Weight (g)	35
Motor combination	Series UC, UB and UD; Series UF without UFR3/4 and UFB3/4



Gearboxes

Standard Data

Mounting	any position
Axial thrust F_A	10 N
Lateral force F_R	50 N
Slipping clutches/free wheel	single-way clockwise/counter clockwise function and two way
Slipping-/free wheel torque	1 ... 40 cNm
Output shafts	$\varnothing 4 \times 10$, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	$^{\circ}\text{C} -15 \dots +55$
Ambient temperature storage	$^{\circ}\text{C} -40 \dots +80$

Ratios	4 1/6	5	8 1/3	10	12 1/2	15	16 2/3	20 5/6	25	30	33 1/3	40	41 2/3
	45	50	60	62 1/2	83 1/3	100	120	125	150	166 2/3	200	250	300
	375	500	600	625	750	900	1000	1200	1500	1800	2000	2400	2500
	3000	3600	3750	4500	5000	6000	7500	9000	10000	15000	18000	21600	22500
	30000	36000	45000	54000	60000	72000	90000	108000	112500	120000	180000	216000	225000
	270000	300000	360000	432000	450000	720000	864000	1800000	5040000	6048000			

Order Reference

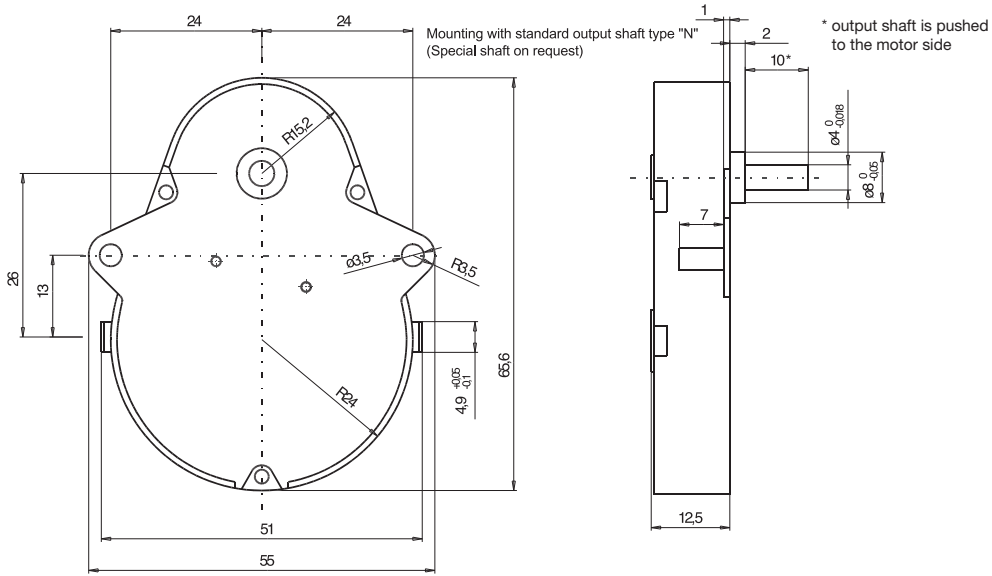
Type	Gearbox	UGD	100	N	5cNm	N
Ratio	100					
Slipping clutch	N Without slipping clutch ER One-way slipping clutch, clockwise EL One-way slipping clutch, counter clockwise Z Two-way slipping clutch					
Slipping torque	5 cNm (for instance)					
Shaft end	N $\varnothing 4 \times 10$, other on request					

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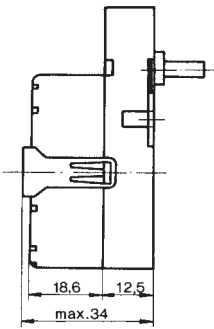


UGD

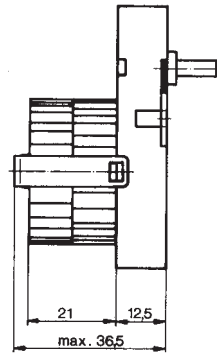
Dimensions



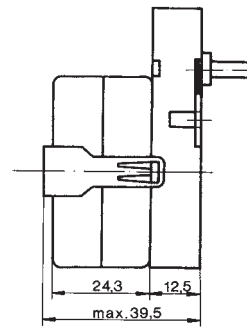
UDS 1..D



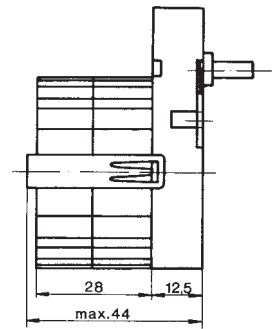
UBR 1/UBR 2..D



UDR 1..D



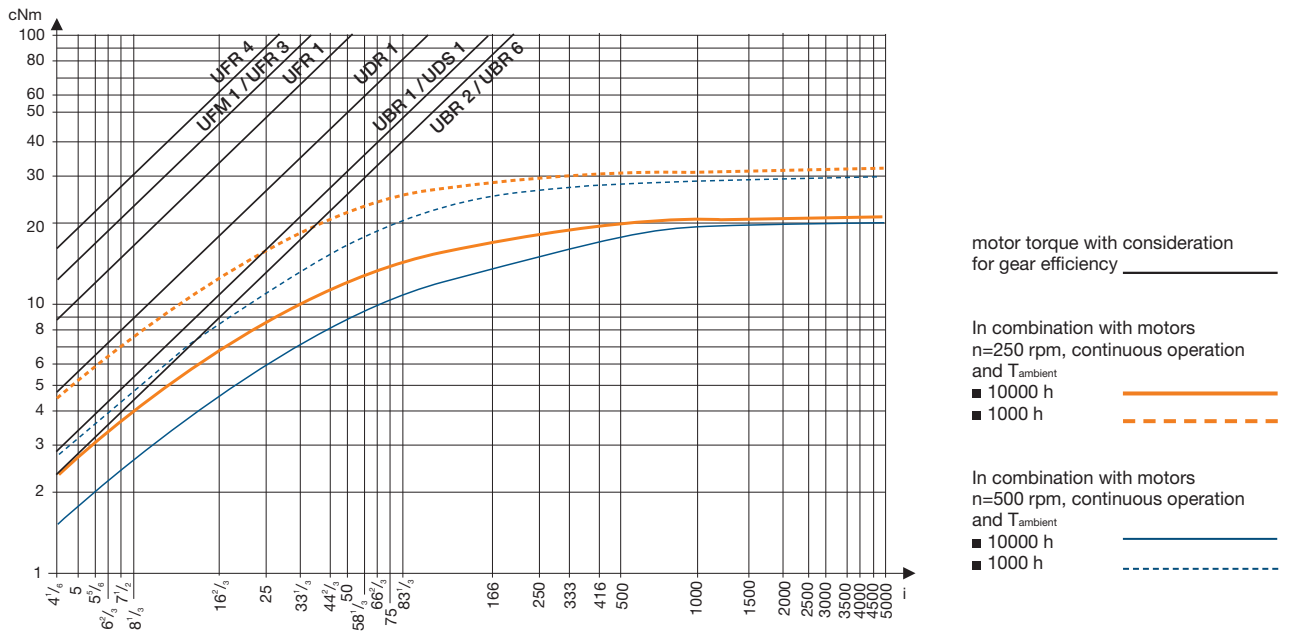
UFM 1/UFU 1/UFR 1..D



Slipping clutches

	max. torque available at output shaft (cNm)	free wheel-/clutch torque (cNm)
Roller-type free wheel	32	1
Single-way slipping clutches	32	4 ... 25 counter clockwise or clockwise function
Two-way slipping clutches	3 ... 15	4 ... 40

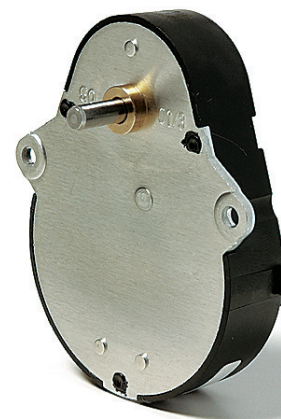
Torque / ratio / life graph



UGM

UGM

Dimensions (mm)	51 x 65.2
Height (mm)	15
Max. torque (cNm)	100
Ratios	12.5 ... 4800
Internal slipping clutch	none
Standard shaft (mm)	∅ 4 x 10
Weight (g)	45
Motor combination	Series UC, UB and UD; Series UF without UFR3/4 and UFB3/4



Standard Data

Mounting	any position
Axial thrust F_A	20 N
Lateral force F_R	100 N
Output shafts	∅ 4 x 10, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +60
Ambient temperature storage	°C -40 ... +80

Ratios	12 1/2	16 2/3	25	50	100	120	150	200	240	300	400	450	500	600
	750	1000	1200	1500	4800									

Order Reference

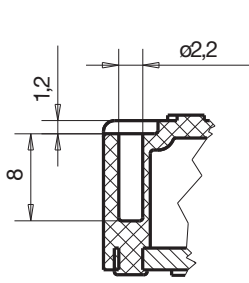
Type	Gearbox	UGM	100	N	N
Ratio	100				
Slipping clutch	N Without slipping clutch				
Shaft end	N ∅ 4 x 10, other on request				



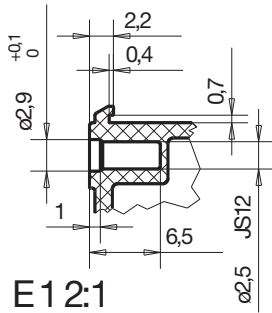
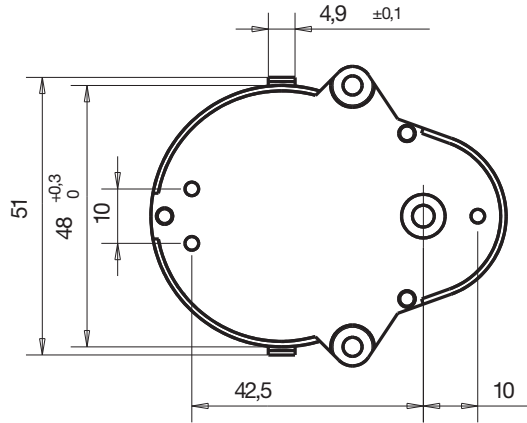
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UGM

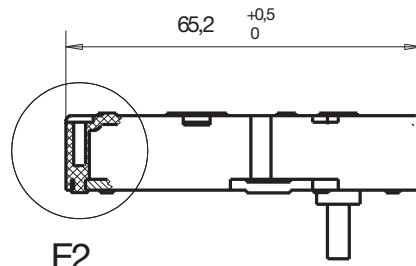
Dimensions



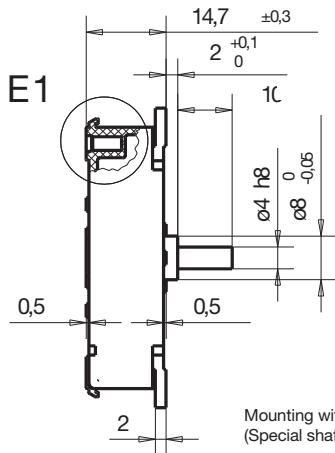
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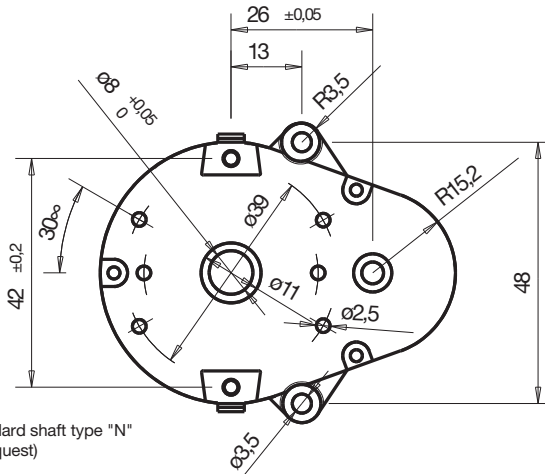
E12:1



E2

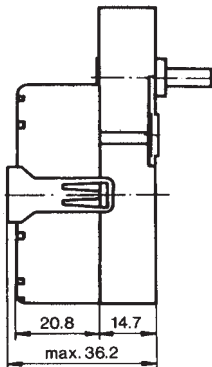


E1

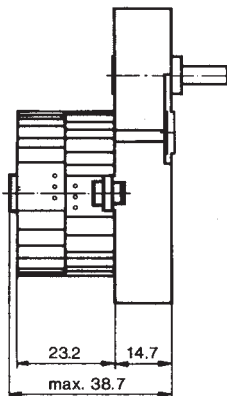


Mounting with standard shaft type "N"
(Special shaft on request)

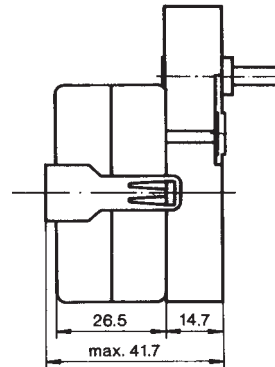
UDS 1..M



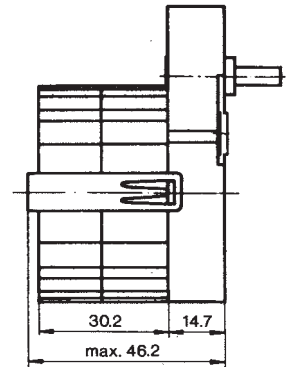
UBR 1..M



UDR 1..M

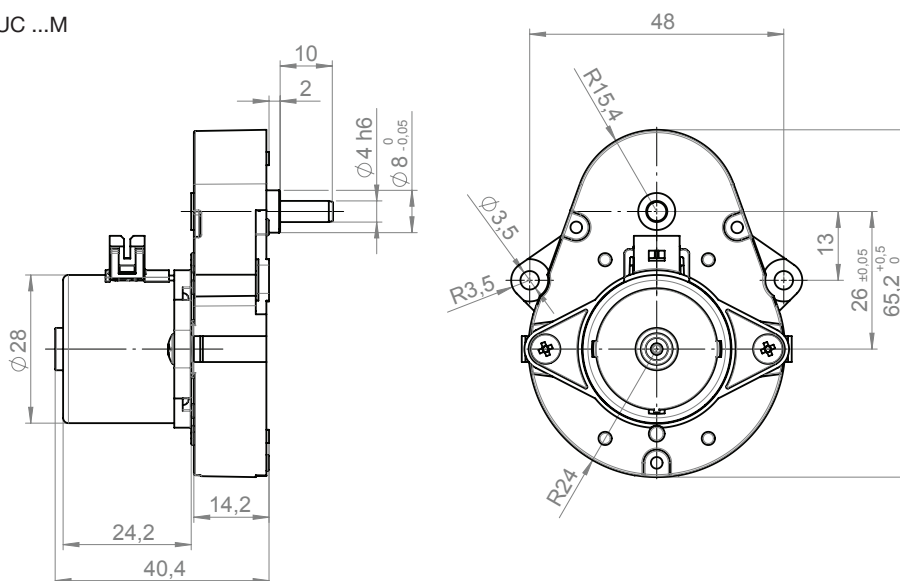


UFM 1/UFU 1/UFR 1..M

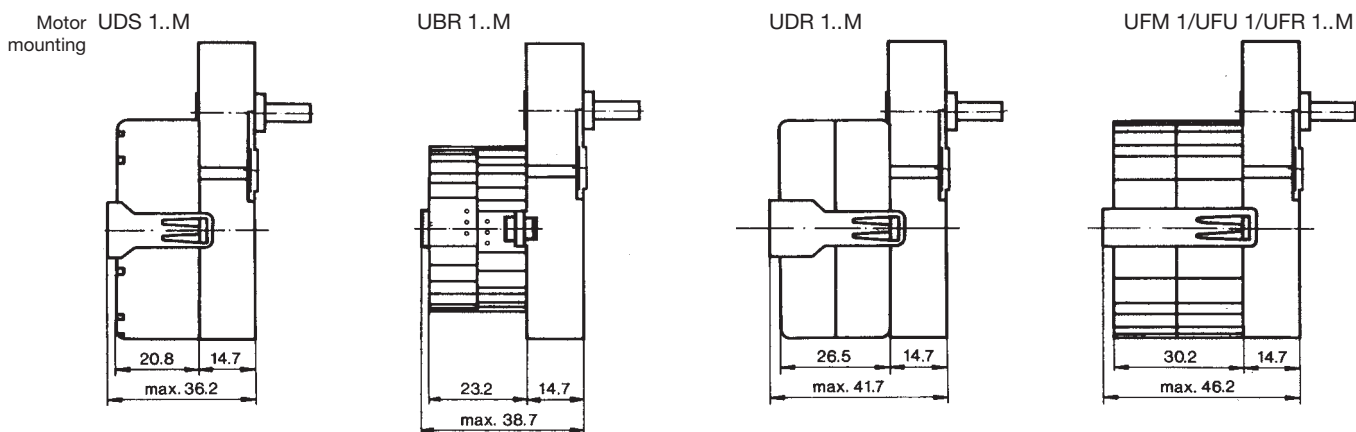


UGM

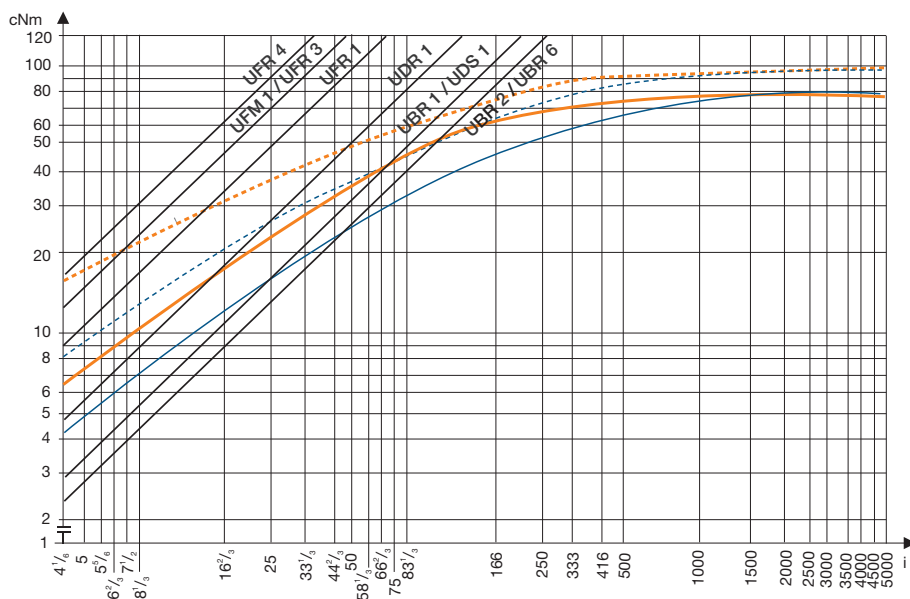
Dimensions UC ...M



Gearboxes



Torque / ratio / life graph



motor torque with consideration for gear efficiency _____

In combination with motors
n=250 rpm, continuous operation
and $T_{ambient}$
 ■ 10000 h ————
 ■ 1000 h - - - - -

In combination with motors
n=500 rpm, continuous operation
and $T_{ambient}$
 ■ 10000 h ————
 ■ 1000 h - - - - -

UGB

UGB

Dimensions (mm)	58 x 81
Height (mm)	17
Max. torque (cNm)	250
Ratios	41 ^{2/3} ... 345.600
Internal slipping clutch	optional
Standard shaft (mm)	Ø 8 x 12
Weight (g)	130
Motor combination	Series UC, UB and UD; Series UF without UFR3/4 and UFB3/4



Gearboxes

Standard Data

Mounting	any position
Axial thrust F _A	100 N
Lateral force F _R	300 N
Slipping clutches/free wheel	single-way clockwise/counter clockwise function and two way
Slipping-/free wheel torque	4 ... 175 cNm
Output shafts	Ø 8 x 12, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

Ratios	41 ^{2/3}	83 ^{1/3}	100	125	150	166 ^{2/3}	200	250	300	500	600	750	900
	1000	1200	1500	1800	2000	2500	3000	3750	5000	6000	7500	12000	15000
	18000	30000	36000	60000	120000	266666 ^{2/3}	288000	320000	345600				

Order Reference

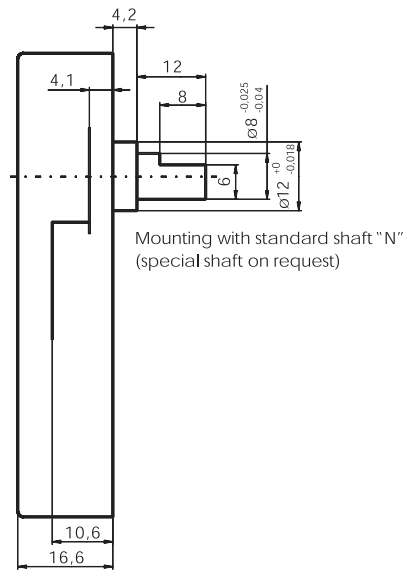
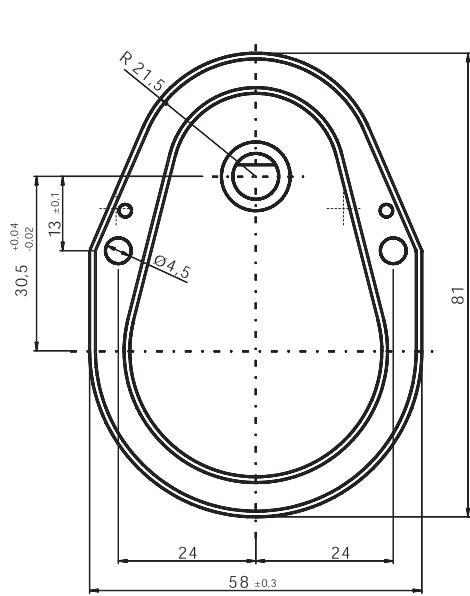
Type	Gearbox	UGB	100	N	5cNm	N
Ratio	100					
Slipping clutch	N Without slipping clutch ER One-way slipping clutch, clockwise EL One-way slipping clutch, counter clockwise Z Two-way slipping clutch					
Slipping torque	5 cNm					
Shaft end	N Ø 8 x 12, other on request					

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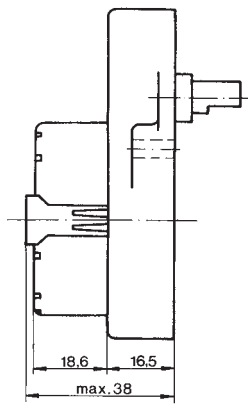
UGB

Dimensions

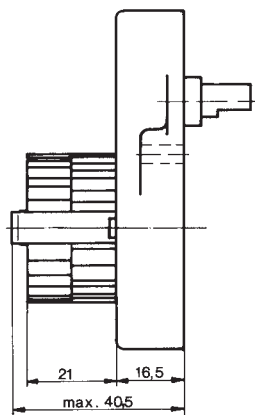


Mounting with standard shaft "N"
(special shaft on request)

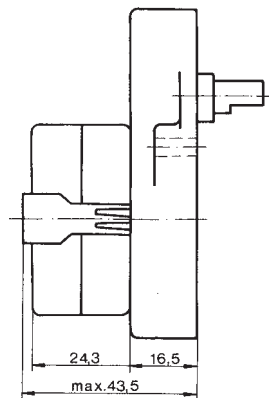
UDS 1..B



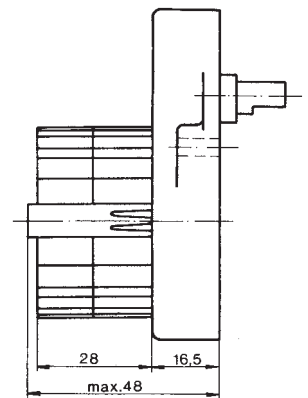
UBR 1/UBR 2..B



UDR 1..B



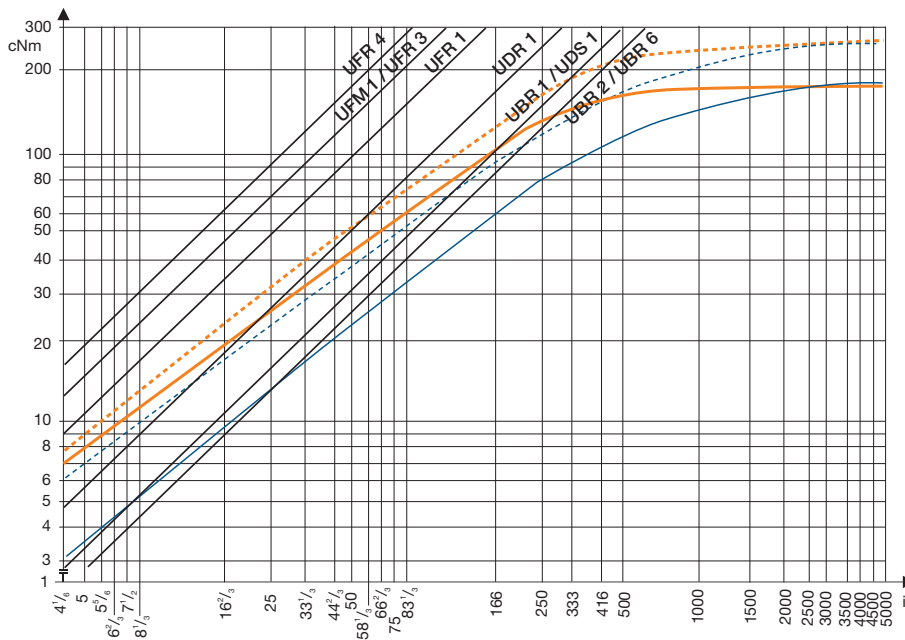
UFM 1/UFU 1/UFR 1..B



Slipping clutches

	max. torque available at output shaft (cNm)	free wheel-/clutch torque (cNm)
Roller-type free wheel		
Single-way slipping clutches	150	4 ... 50 counter clockwise or clockwise direction possible
Two-way slipping clutches	40 ... 70	60 ... 175

Torque / ratio / life graph



motor torque with consideration for gear efficiency _____

In combination with motors
n=250 rpm, continuous operation
and $T_{ambient}$

■ 10000 h _____
■ 1000 h - - - - -

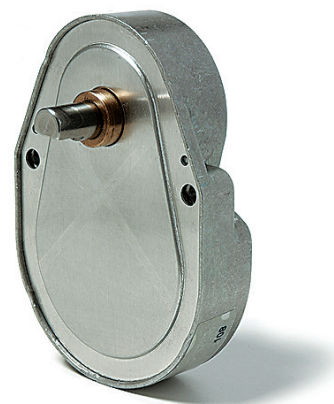
In combination with motors
n=500 rpm, continuous operation
and $T_{ambient}$

■ 10000 h _____
■ 1000 h - - - - -

UGF

UGF

Dimensions (mm)	58 x 81
Height (mm)	17
Max. torque (cNm)	500
Ratios	4 ¹ / ₆ ... 5000
Internal slipping clutch	none
Standard shaft (mm)	∅ 8 x 12
Weight (g)	130
Motor combination	Series UC, UB, UD, UF



Standard Data

Mounting	any position
Axial thrust F _A	100 N
Lateral force F _R	400 N
Slipping clutches/free wheel	none
Slipping-/free wheel torque	cNm
Output shafts	∅ 8 x 12, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

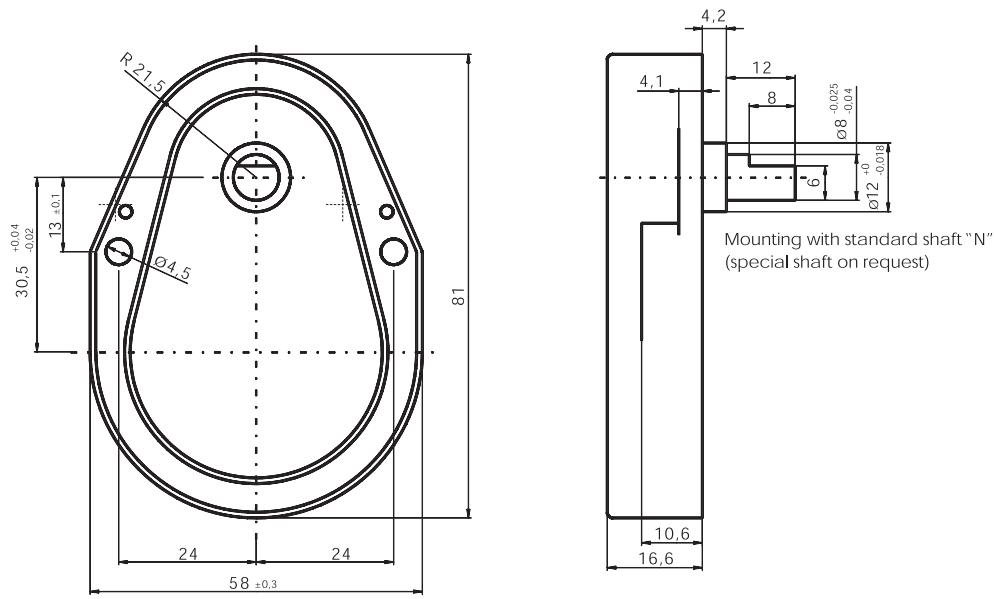
Ratios	4 ¹ / ₆	8 ¹ / ₃	16 ² / ₃	20 ⁵ / ₆	25	30	41 ² / ₃	50	62 ¹ / ₂	83 ¹ / ₃	100	125	166 ² / ₃
	250	333 ¹ / ₃	500	600	750	1000	1200	1500	4000	5000			

Order Reference

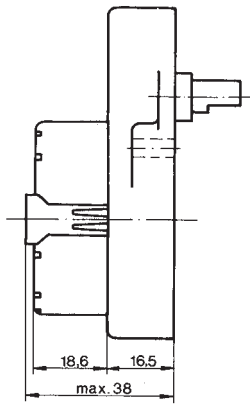
Type	Gearbox	UGF	100	N	N
Ratio	100				
Slipping clutch	N Without slipping clutch				
Shaft end	N ∅ 8 x 12, other on request				

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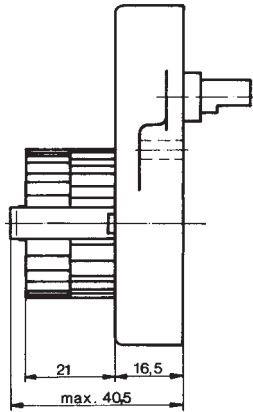
Dimensions



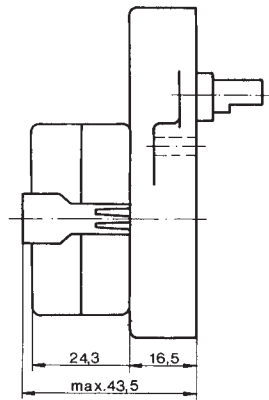
UDS 1..F



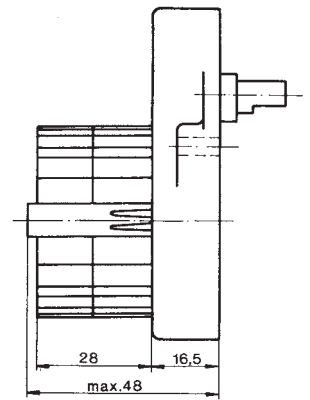
UBR 1/UBR 2..F



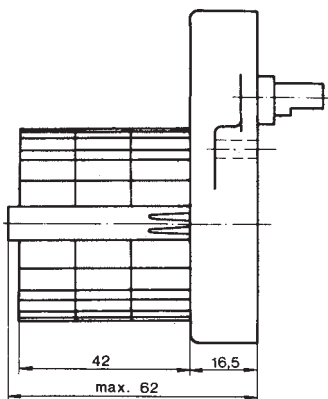
UDR 1..F



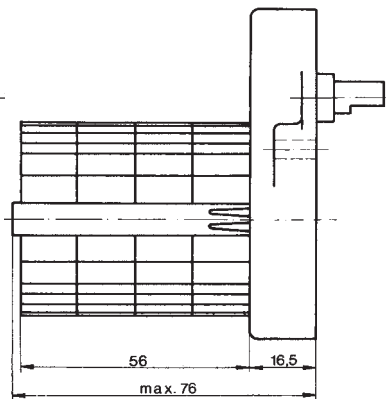
UFM 1/UFU 1/UFR 1..F



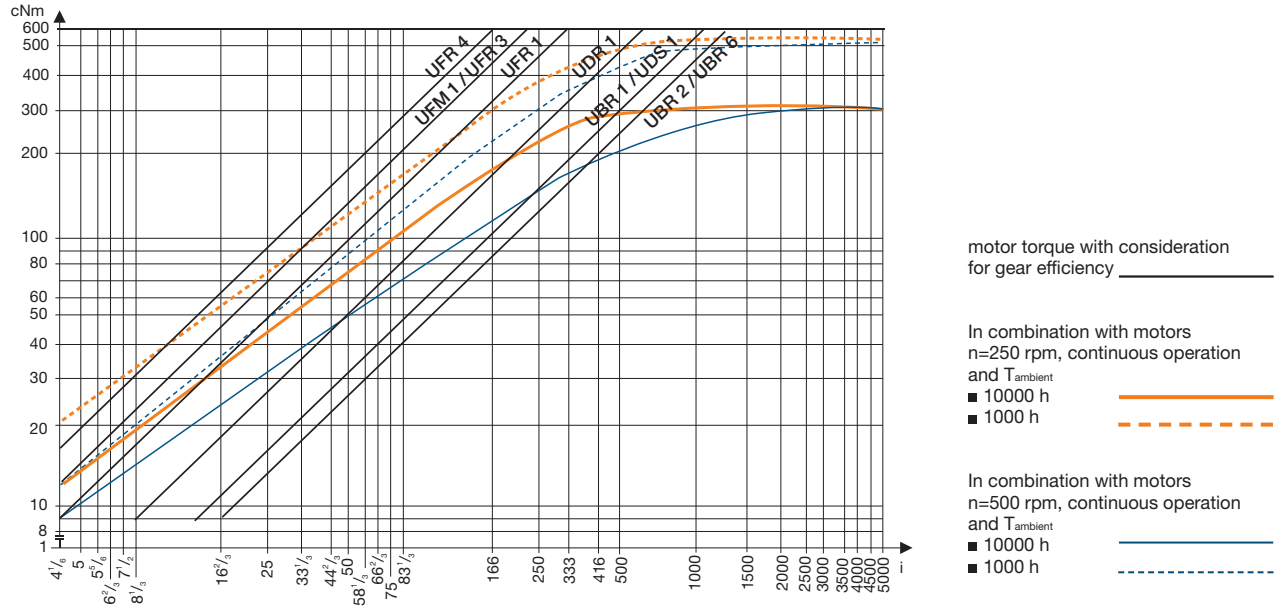
UFR 3..F



UFR 4..F



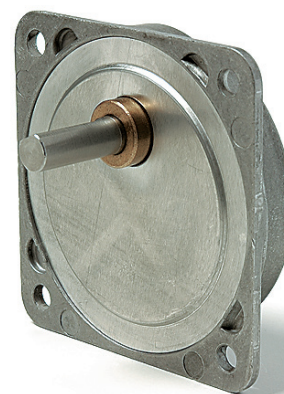
Torque / ratio / life graph



UGV

UGV

Dimensions (mm)	70 x 70
Height (mm)	17
Max. torque (cNm)	500
Ratios	8 ¹ / ₃ ... 2000
Internal slipping clutch	none
Standard shaft (mm)	Ø 8 x 12
Weight (g)	130
Motor combination	Series UB, UD, UF



Gearboxes

Standard Data

Mounting	any position
Axial thrust F _A	100 N
Lateral force F _R	400 N
Output shafts	Ø 8 x 12, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

Ratios 8¹/₃ 16²/₃ 25 41²/₃ 83¹/₃ 100 125 250 500 2000

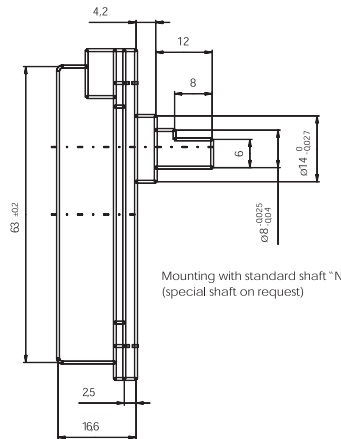
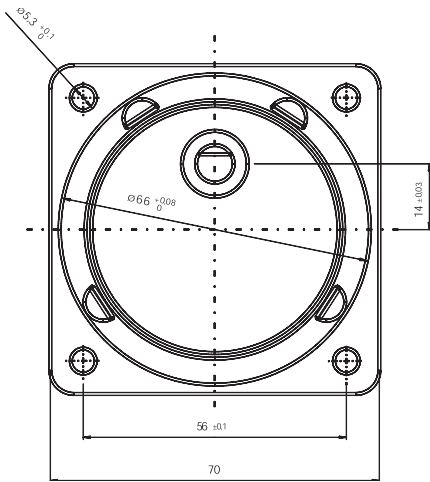
Order Reference

Type	Gearbox	UGV	100	N	N
Ratio	100				
Slipping clutch	N	Without slipping clutch			
Shaft end	N	Ø 8 x 12, other on request			

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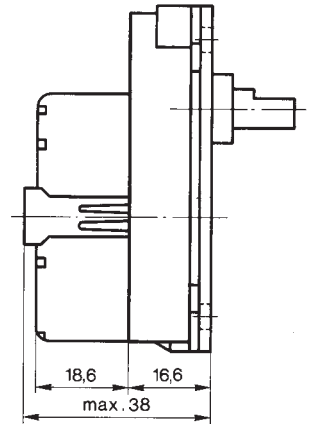


Dimensions

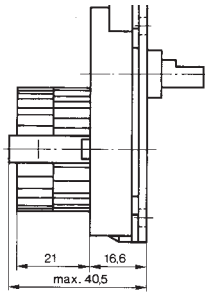


Mounting with standard shaft "N"
(special shaft on request)

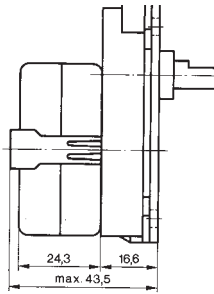
UDS 1..V



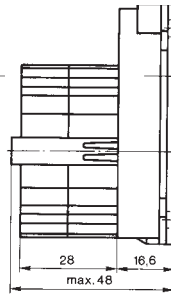
UBR 1/UBR 2..V



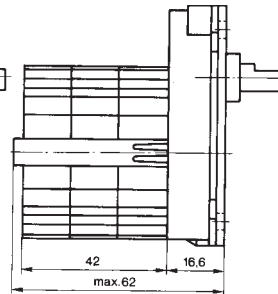
UDR 1..V



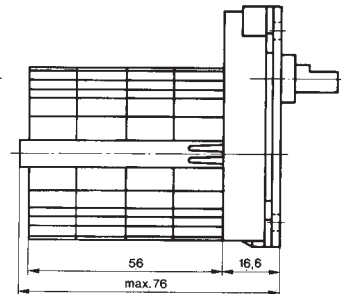
UFM 1/UFU1/UFR 1..V



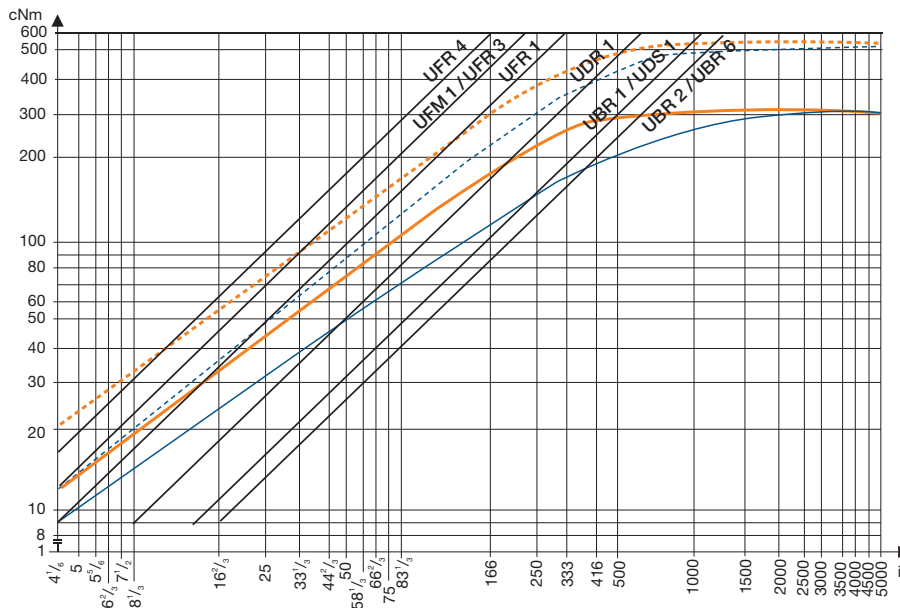
UFR 3..V



UFR 4..V



Torque / ratio / life graph



motor torque with consideration for gear efficiency _____

In combination with motors
n=250 rpm, continuous operation
and T_{ambient}

■ 10000 h ————
■ 1000 h - - - - -

In combination with motors
n=500 rpm, continuous operation
and T_{ambient}

■ 10000 h ————
■ 1000 h - - - - -

UGO/UGP

UGO/UGP (STG60/61)

Dimensions (mm)	65 x 65/68 x 68
Height (mm)	29.8–38
Max. torque (cNm)	600
Ratios	6 1/4 ... 3750
Internal slipping clutch	none
Standard shaft (mm)	∅ 8 x 22
Weight (g)	230–330
Motor combination	series UF and UP



UGO (STG 60)



UGP (STG 61)

Gearboxes

Standard Data

Mounting	any position
Max. input speed*	3000 min ⁻¹
Max. output torque*	600 cNm
Max. input -and output power	please refer to table in Technical Data
Average back lash	unloaded 1.5 degree 2–4 stages with 6 Nm 3 degree 5–6 stages with 6 Nm 4 degree
Max. axial force F _A	30 N
Max. lateral force F _R , 12 mm from flange	80 N
Max. axial play	0.3 mm
Max. radial play	20 μm
Ambient temperature operation	–15 ... +60°C
Ambient temperature storage	–40 ... +100 °C

Ratio	6 1/4	12 1/2	18 3/4	25	31 1/4	37 1/2	46 7/8	50	62 1/2	75
	93 3/4	125	150	187 1/2	250	375	750	1500	2000	3750

* Depends on ratio, see next page

Order Reference

Type	Gearbox		STG60 UGO		6 1/4	M	N
Ratio	6 1/4						
Mounting layouts (fixing)	K	UGO					
	M	UGP	through holes				
	R	M4	threads on gearbox flange side				
	T	M4	threads on motor side				
	V	M4	threads on both sides				
	shaft end N ∅ 8 x 25, other upon request						
optional	motor pinion: see next pages		Motor Pinion Data				
	adaptor plate: see next pages		for adaptor plate				

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UGO/UGP

Technical Data

Ratio	Stages *	Efficiency	Pinion type	Weight	Max. torque (Nm)	Max. input speed (rpm)
6 1/4	2	0.77	1	190	1.0	750
12 1/2	3	0.68	2	220	1.8	1500
18 3/4	3	0.68	3	220	2.7	2250
25	3	0.68	3	220	3.6	3000
31 1/4	3	0.68	4	220	4.5	3000
37 1/2	3	0.68	4	220	5.4	3000
46 7/8	4	0.60	3	250	6	3000
50	4	0.60	2	250	6	3000
62 1/2	4	0.60	2	250	6	3000
75	4	0.60	3	250	6	3000
93 3/4	4	0.60	3	250	6	3000
125	4	0.60	2	250	6	3000
150	4	0.60	3	250	6	3000
187 1/2	4	0.60	4	250	6	3000
250	5	0.53	2	280	6	3000
375	5	0.53	3	280	6	3000
750	5	0.53	4	280	6	3000
1500	6	0.46	4	310	6	3000
2000	6	0.46	4	310	6	3000
3750	6	0.46	4	310	6	3000

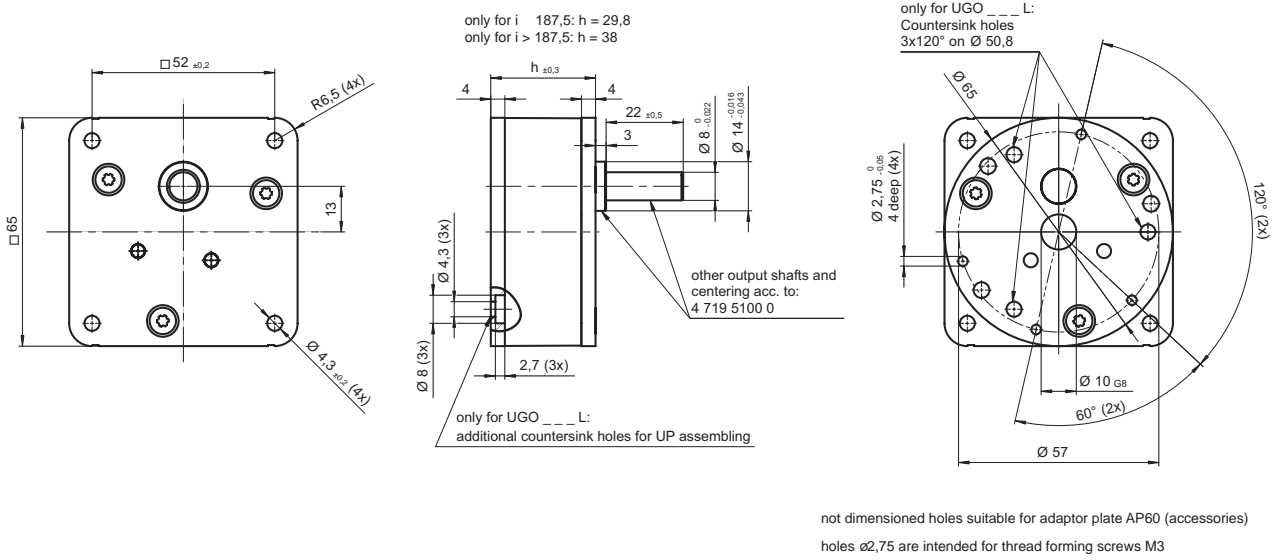
Additionally to the input speed limit: max. 120 rpm output speed

Technical Data valid for an ambient temperature operation: -15...+60°C

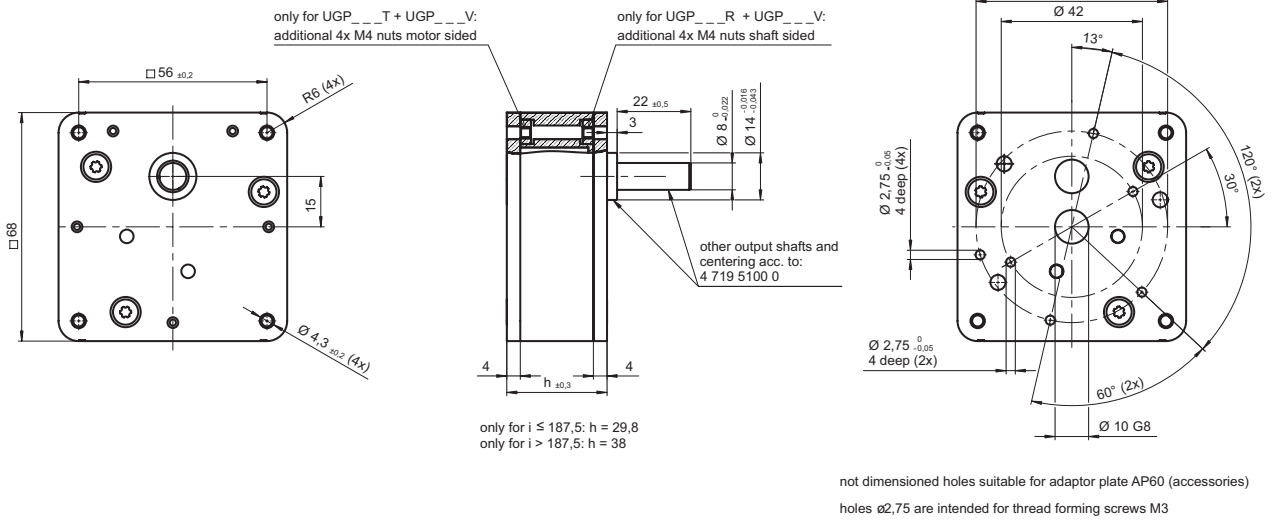
* Direction of rotation of output- and motor-shaft at
2.4 and 6 stages - same
3 and 5 stages - opposite

UGO/UGP

Dimensions UGO



UGP



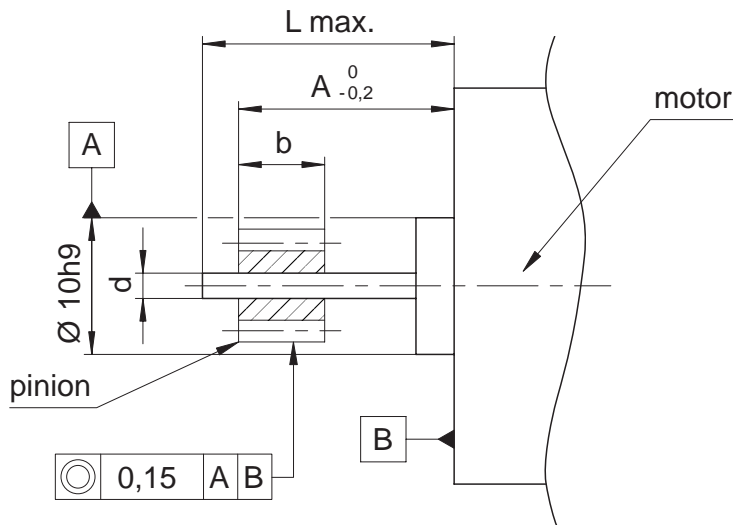
Other shafts on request

UGO/UGP

Motor Pinion Data UGO/P (STG 60/61)

pinion type	pinion length b	motor pinion with hole d: 022 100 004 ...			
		Ø2.5S7	Ø3S7	Ø4X7	Ø5S7
1	6	-	020	030	040
2	4.5	-	080	090	110
3	4.5	270	280	290	310
4	4.5	580	590	600	610

Dimensions for
motor assembly



Pinion position	Dimension	A	L
2 gear stages		8,9	9,6
3-6 gear stages		7,6	7,6

UGJ

Dimensions (mm)	65 x 107
Height (mm)	28
Max. torque (cNm)	1500
Ratios	4 ^{1/6} ... 36.000.000
Internal slipping clutch	none
Standard shaft (mm)	Ø 12 x 20
Weight (g)	480
Motor combination	Series UB, UD, UF



Standard Data

Mounting	any position
Axial thrust F _A	400 N
Lateral force F _R	600 N
Output shafts	Ø 12 x 20, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

Ratios*	4 ^{1/6}	8 ^{1/3}	16 ^{2/3}	33 ^{1/3}	41 ^{2/3}	50	66 ^{2/3}	83 ^{1/3}	100	125	150	166 ^{2/3}	200
	250	500	1000	2000	2500	3000	4000	5000	6250	8333 ^{1/3}	10000	12500	15000
	20000	25000	30000	37500	60000	75000	120000	150000	300000	375000	750000	1500000	1800000
	2250000	3000000	3600000	4500000	6000000	9000000	11250000	12000000	18000000	36000000			

* For ratio ≥ 2500 combination with UGD

Order Reference

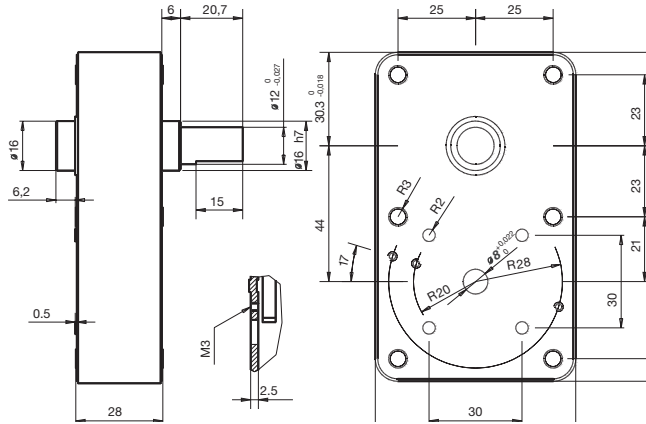
Type	Gearbox	UGJ	100	N	N
Ratio	100				
Slipping clutch	N Without slipping clutch				
Shaft end	N Ø 12 x 20, other on request				



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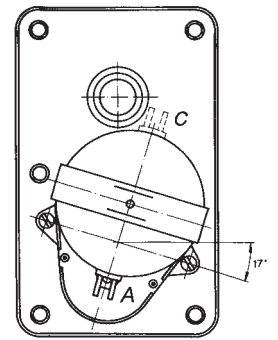
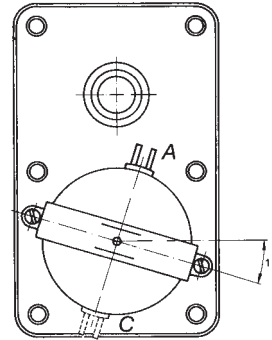
UGJ

Dimensions



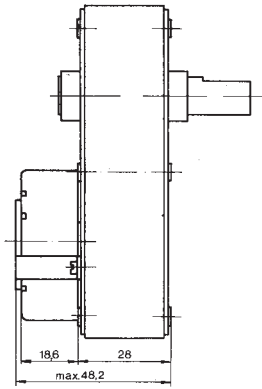
$i \leq 2000$

$i \geq 2500$

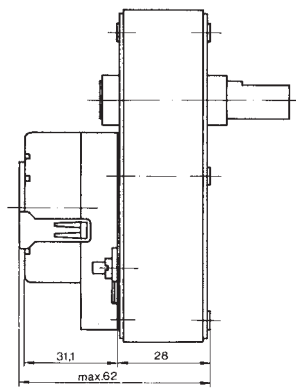


Lead outlet (A = standard position)

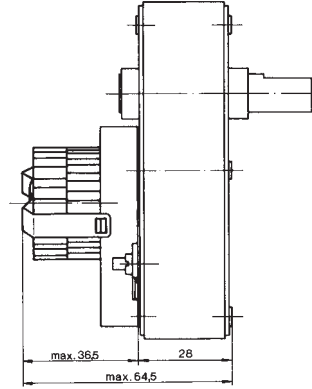
UDS 1..J, $i \leq 2000$



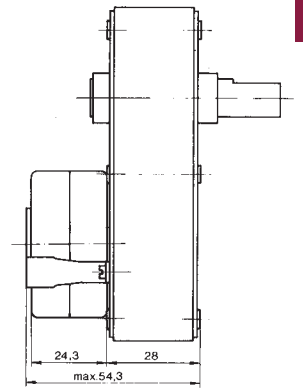
UDS 1..J, $i \geq 2500$



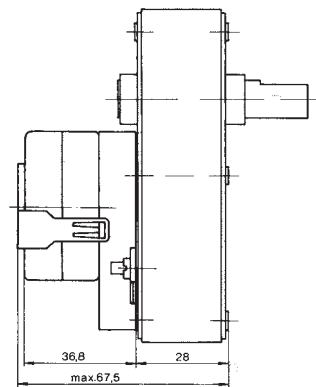
UBR 1/UBR 2..J, $i \geq 2500$



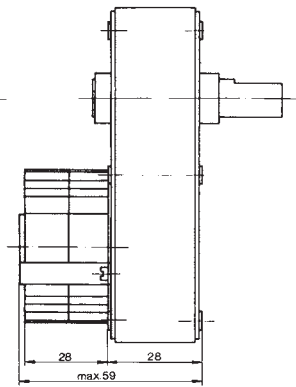
UDR 1..J, $i \leq 2000$



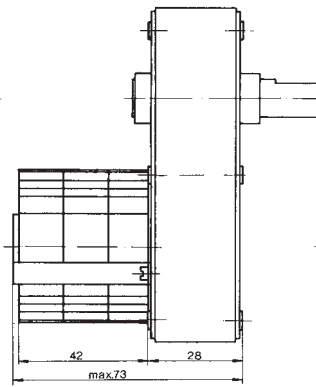
UDR 1..J, $i \geq 2500$



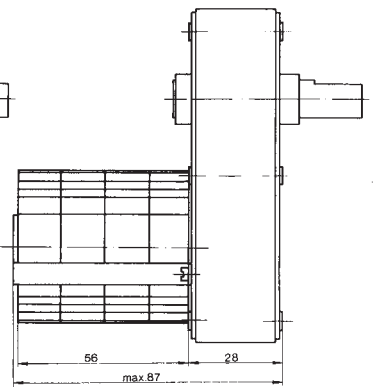
UFM 1/UFU 1/UFR 1..J, $i \leq 2000$



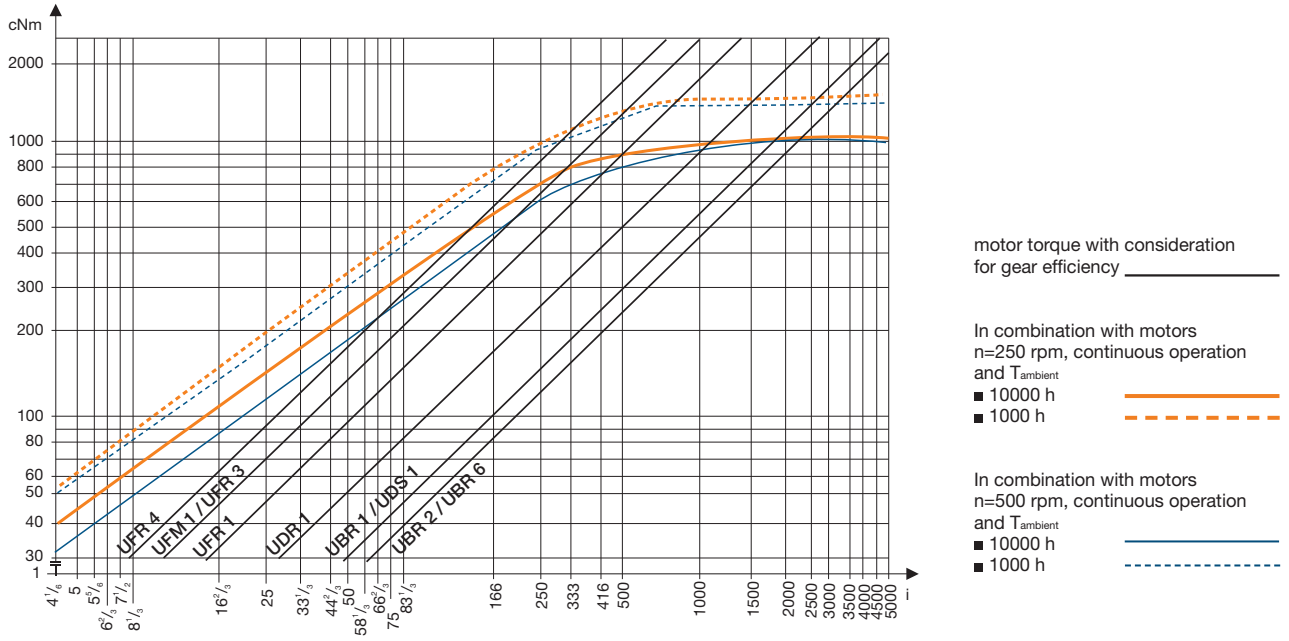
UFR 3..J, $i \leq 2000$



UFR 4..J, $i \leq 2000$



Torque / ratio / life graph



UGR

UGR (STG 200)

Dimensions (mm)	70 x 130
Height (mm)	38
Max. torque (cNm)	2000
Ratios	12.5 ... 375
Internal slipping clutch	none
Standard shaft (mm)	Ø 12 x 35
Weight (g)	depends on ratio
Motor combination	UP



Standard Data

Mounting	any position
Max. input speed *	3000 min ⁻¹
Max. output torque *	2000 cNm
Max. input -and output power *	please refer to table in Technical Data
Average back lash unload	0.75°
2/3 stages with 4/10 Nm	1.25°
4/5 stages with 15/20 Nm	2°
Max. axial force F _A	60 N
Max. lateral force F _R , 20 mm from flange	80 N
Max. axial play	0.3 mm
Max. radial play	83 µm
Ambient temperature operation	-15 ... +60°C
Ambient temperature storage	-40 ... +100 °C

Ratio	12 1/2	37 1/2	62 1/2	75	93 3/4	125	250	375
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* Depends on ratio, see next page

Order Reference

Type	Gearbox	UGR	12 1/2	N	N
Ratio	12 1/2				
Mounting layouts	N	standard			
Shaft end	N	Ø 12 x 35, others upon request			
optional	motor pinion: see next pages		Motor Pinion Data		

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Technical Data

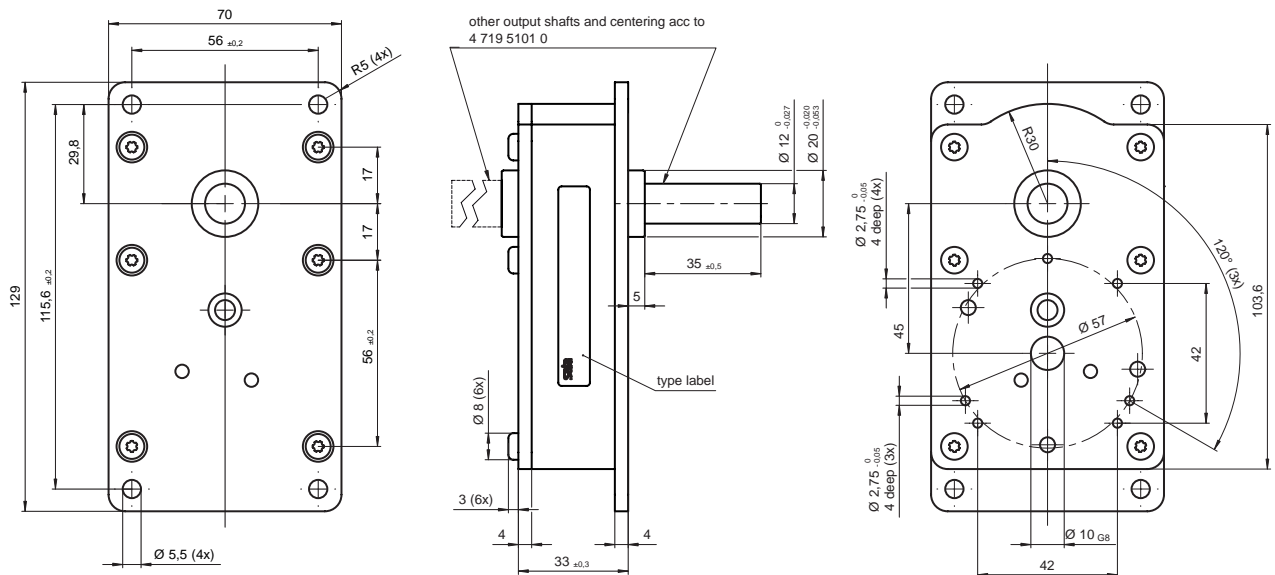
Ratio	Stages *	Efficiency	Pinion type	Weight	Max. torque (Nm)	Max. input speed (rpm)
12 1/2	2	0.77	1	560	3.6	1500
37 1/2	3	0.68	2	580	9.9	3000
62 1/2	4	0.60	3	600	14.6	3000
75	4	0.60	4	600	17.5	3000
93 3/4	4	0.60	4	600	20	3000
125	4	0.60	4	600	20	3000
250	5	0.53	5	620	20	3000
375	5	0.53	2	620	20	3000

Additionally to the input speed limit: max. 120 rpm output speed

Technical Data valid for an ambient temperature operation: -15...+60°C

* Direction of rotation of output- and motor-shaft at
2 and 4 stages - same
3 and 5 stages - opposite

Dimensions other shafts on request

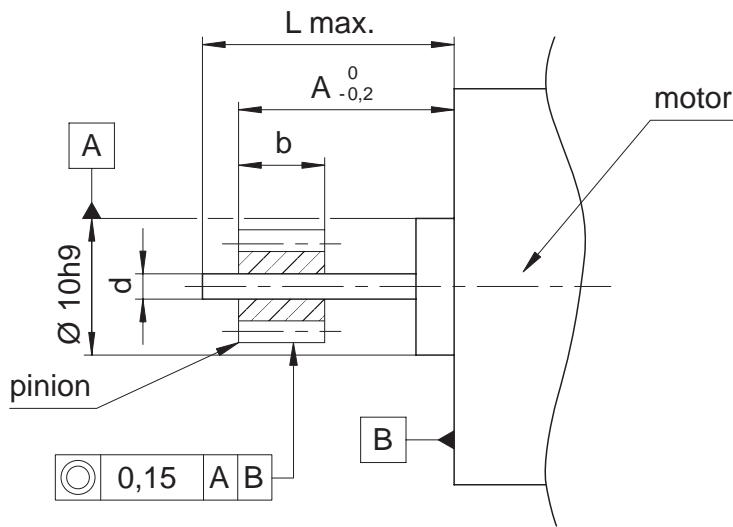


not dimensioned holes suitable for adaptor plate AP60 (accessories)
holes ø2,75 are intended for thread forming screws M3

Motor Pinion Data

pinion type	pinion length b	motor pinion with hole d: 022 100 020 ...		
		Ø3S7	Ø4X7	Ø5S7
1	11.5	-	130	140
2	6.8	280	290	300
3	11.5	360	370	380
4	11.5	400	410	-
5	6.8	-	250	260

Dimensions for
motor assembly



Pinion position	Dimension	A	L
2 gear stages		16.1	28
3 gear stages		10.3	10.3
4 gear stages		15.1	15
5 gear stages		10.9	11