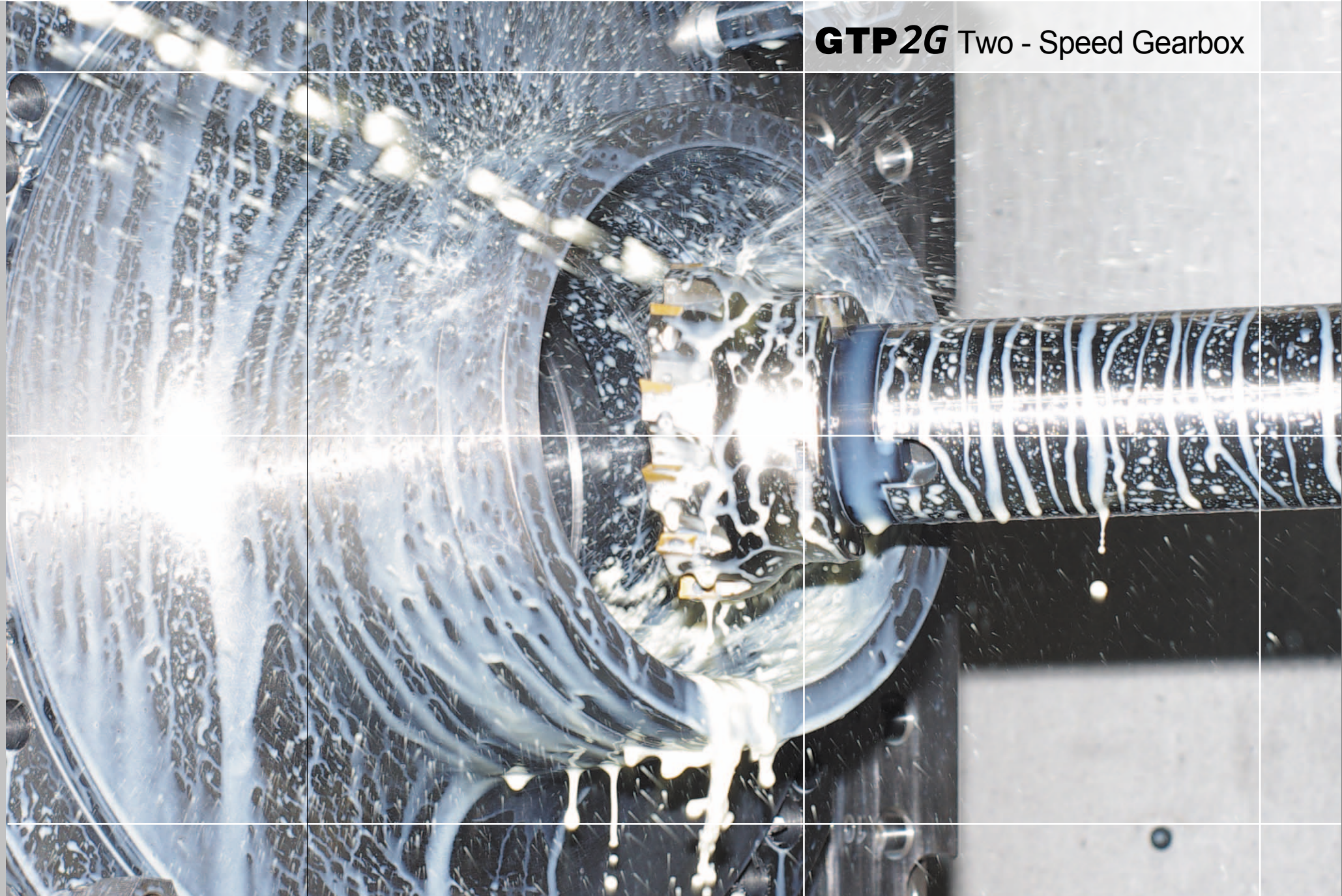


GTP2G Two - Speed Gearbox



GTP German Tech Precision Manufacturing Co., Ltd.

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Chief representative in Taiwan :
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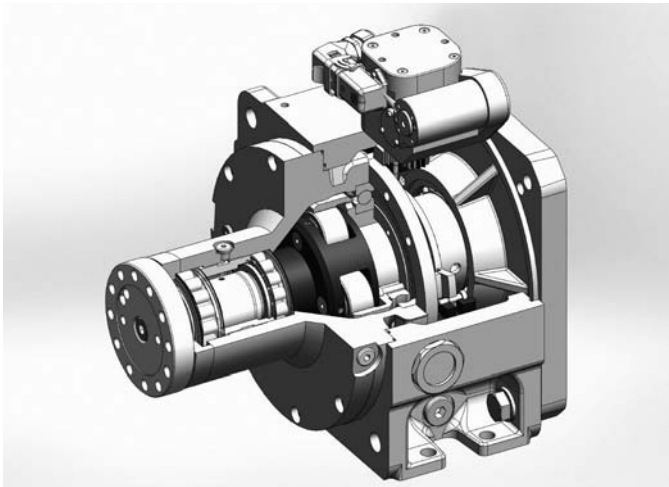


Management
System
ISO 9001:2015

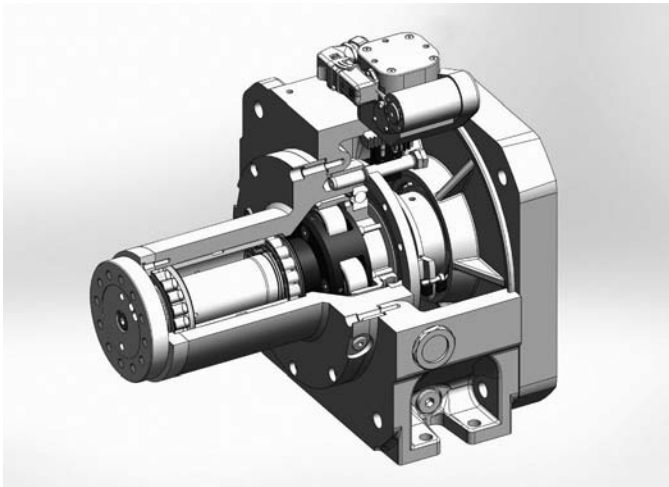
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ID 9108653884



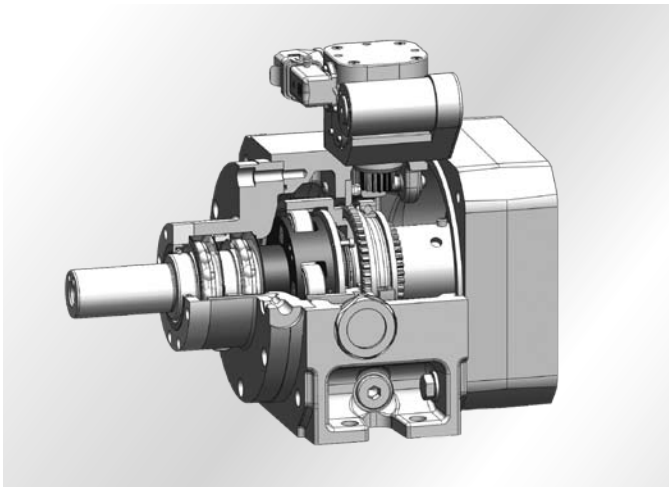
GTP-2G



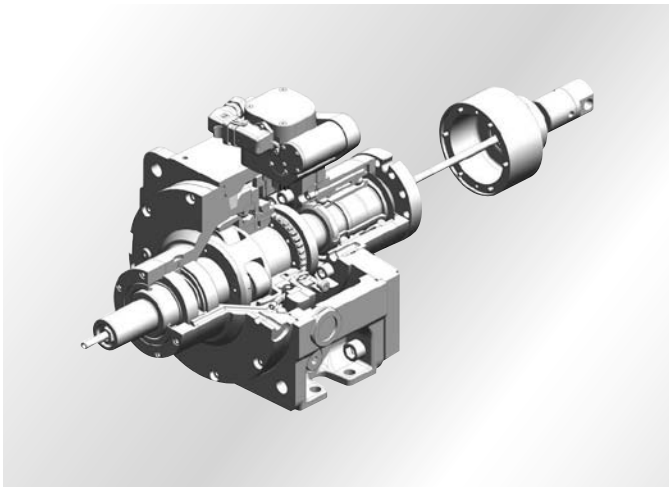
Standard Flange Output



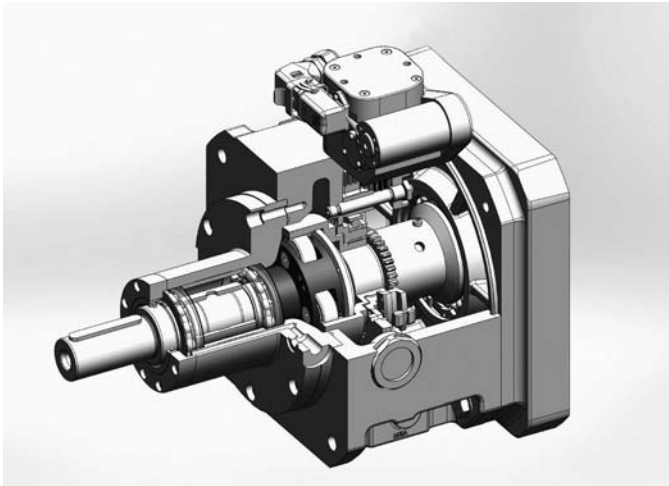
Long-type Standard Flange Output



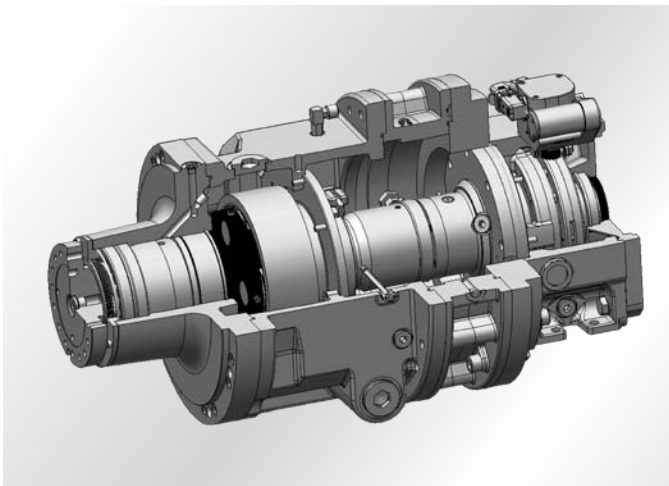
Inline Output



Flange Input with CTS



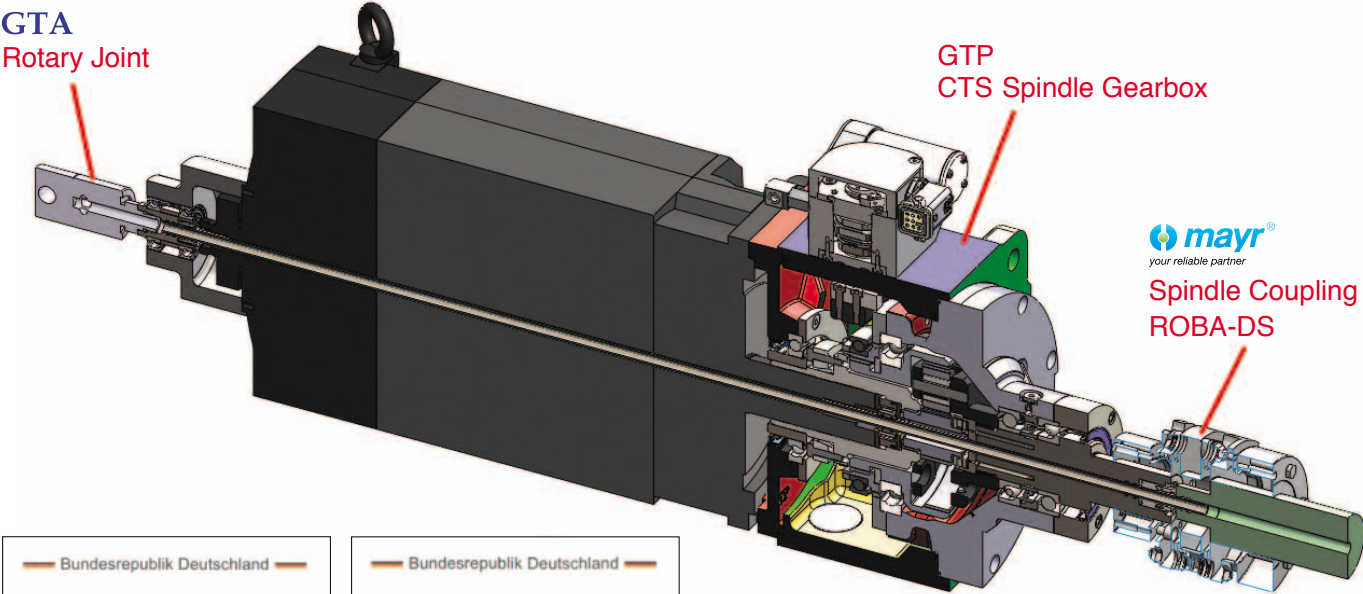
Gear Output



Special Combination Design

GTP-2G

CTS (Coolant Through Spindle)



Low thermo increase



Low vibration

German Patent

Application, Benefits, Design	3–4
Modular design	5–6
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Innovative Technology,
Great Value

Our development and production are focused on high precision and high productivity.

Our innovative product is a high precision two-speed gearbox (GTP-2G) for machine tools as well as customer specific applications.

Application

GTP-2G Two-speed gearboxes are mainly used in machine tool main-spindle drives, test benches, and applications which high torque is needed.

The gearbox can be used in turning machines and machining centers thanks to its variable installation position. The gearbox is also suitable for many systems where torque increases and/or speed reduction is needed.

Benefits

- Energy saving : with a precise reduction mechanism and high efficiency, decreasing or extending the input speed of the motor to achieve machining requirements and save energy.
- Wide machining range : a wide output speed, increasing the flexibilities of machine tools with no influence on machining precision.
- Increase machining torque : effectively extends the output power and increases the output torque of the motor.
- Wide range of machining materials : low output speed and high output torque for hard materials, and high output speed for soft materials.
- High efficiency : a compact design of helical gearing provides better efficiency than spur gearing with the lowest noise and optimized space.
- Modular design : with different adapter designs suitable for different brands of motors.

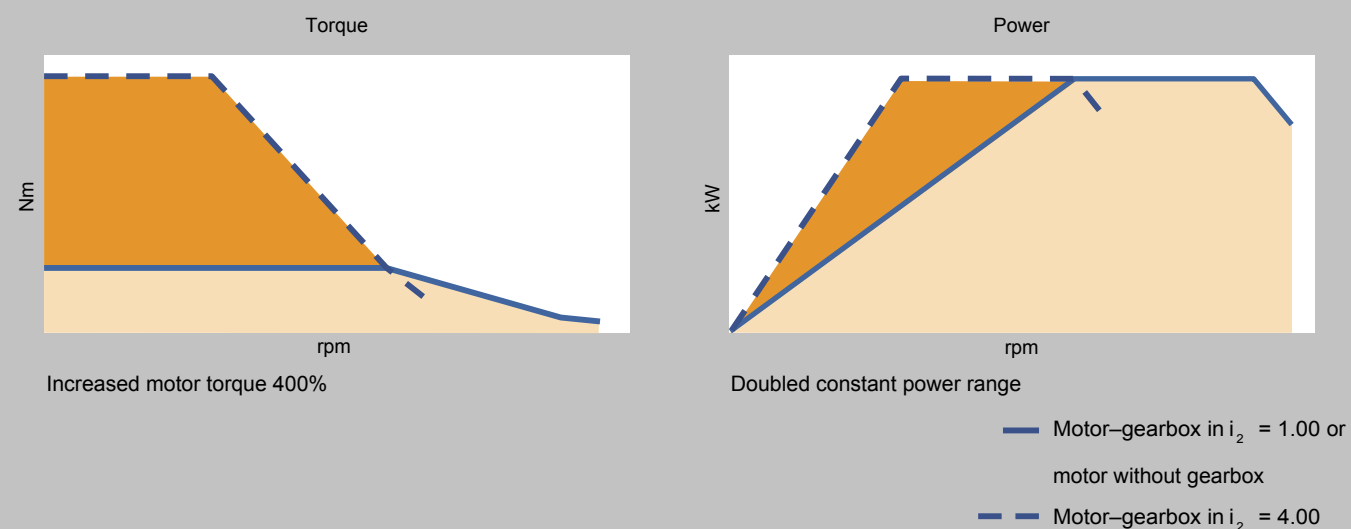
GTP-2G Standard

Wide bearing base for good high radial force

Torque-Power curve

Speed ranges 1:4/1:5.5 are available, constant power to the main spindle can be achieved from the gearbox, depending on the controllable range of the motor. This provides high torque at low speed and high power at high speed allowing the cutting power of modern tools to be fully utilized.

Torque-Power Curve- e.g. **GTP-2G-250**



Machining Center

Design

GTP-2G is an innovative two-speed gearbox for machine tools, characterized by extremely low noise and vibration, as well as an excellent shifting mechanism. The German Engineered GTP-2G is designed and developed by GTP's R&D center located in Germany, based on state-of-the-art technology and abundant experience in the machine tool industry.

GTP-2G adopts a single stage planetary gear concept with a two-speed shifting mechanism in order to meet various demands from worldwide machine tool industries.

In contrast to conventional spur gearboxes, this planetary gearbox is captivating by benefit of the division of power to four planetary gears, thus achieving an extremely compact and space-saving design.

In addition, the four simultaneously meshing helical planetary gears assure low-noise operation at high speed.

Misalignments and concentricity issues are ideally concentrated by the floating design of the sun gear. Such a planetary gearbox is much less sensitive to tolerance.

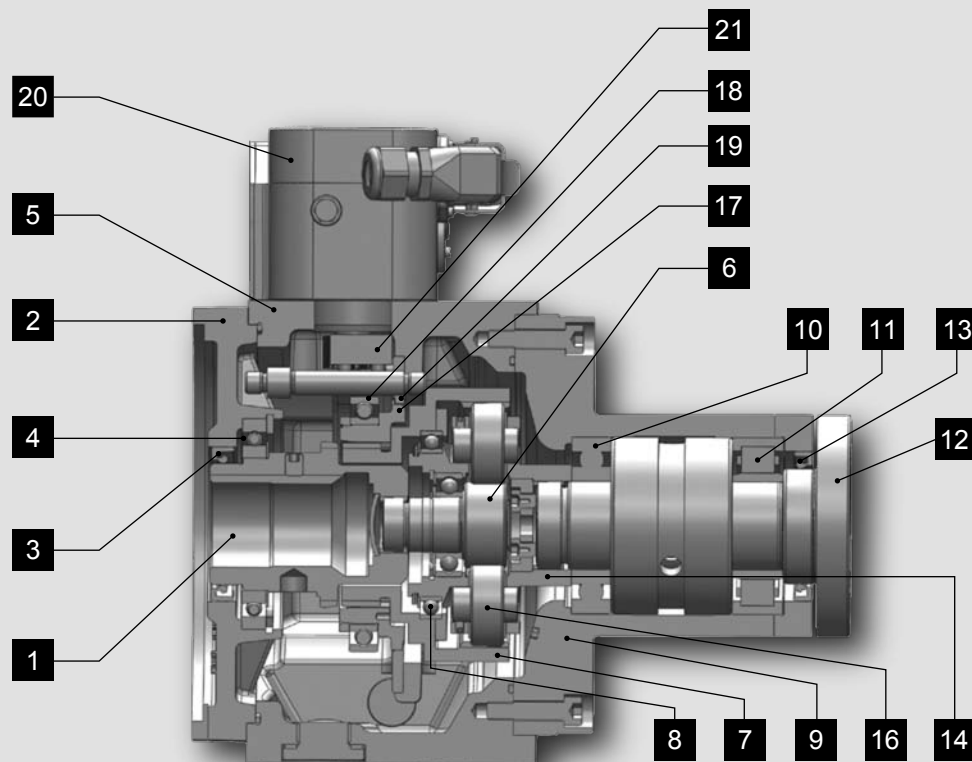
The motor-gearbox unit is commonly fixed to the machine frame or bed by using the gearbox foot mounting (Available for 2G120, 2G250, 2G300, 2G600 only).

Each gearbox has an output side pilot for flange mounts available. For each application there is an ideal choice of output bearing with a wide bearing base.

Variable output housings suitable for different main spindle design :
 e.g. GTP-2G STANDARD with a wide bearing base for belt drives, allowing high radial load; GTP-2G INLINE with a short output housing and angular contact bearings for direct drive.

GTP-2G INLINE
 Short output housing for direct mounting to spindle.

GTP-2G120/121 Standard



Main components of gearbox :

Adapter parts :

- 1: Drive hub
- 2: Adapter plate
- 3: Shaft seal
- 4: Hub bearing

Housing :

- 5: Gearbox housing

Input :

- 6: Sun gear
- 7: Ring gear
- 8: Ring gear bearing

Output :

- 9: Output housing
- 10: Output bearing
- 11: Output bearing
- 12: Output shaft
- 13: Shaft seal
- 14: Planetary carrier
- 15: Axial bearing with cup spring
- 16: Planetary gear

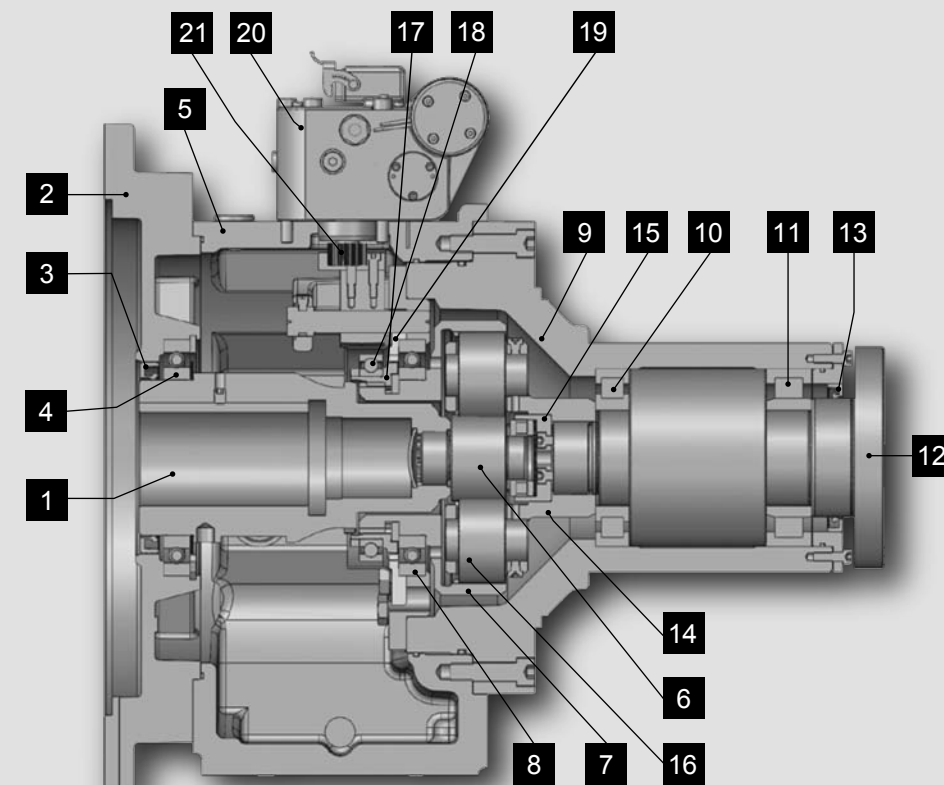
Gear shifting unit :

- 17: Sliding sleeve
- 18: Sliding sleeve bearing
- 19: Brake disc

Gear shifting unit :

- 20: Shifting unit
- 21: Rack/pinion

GTP-2G600 Standard



Main components of gearbox :

Adapter parts :

- 1: Drive hub
- 2: Adapter plate
- 3: Shaft seal
- 4: Hub bearing

Housing :

- 5: Gearbox housing

Input :

- 6: Sun gear
- 7: Ring gear
- 8: Ring gear bearing

Output :

- 9: Output housing
- 10: Output bearing
- 11: Output bearing
- 12: Output shaft
- 13: Shaft seal
- 14: Planetary carrier
- 15: Axial bearing with cup spring
- 16: Planetary gear

Gear shifting unit :

- 17: Sliding sleeve
- 18: Sliding sleeve bearing
- 19: Brake disc

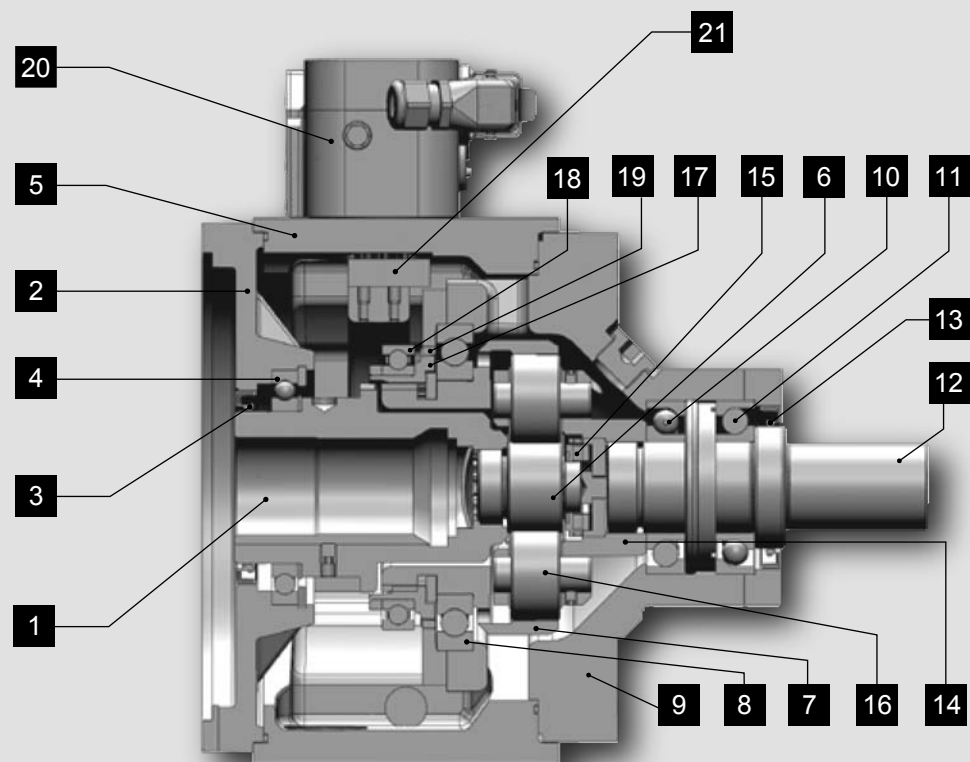
Gear shifting unit :

- 20: Shifting unit
- 21: Rack/pinion

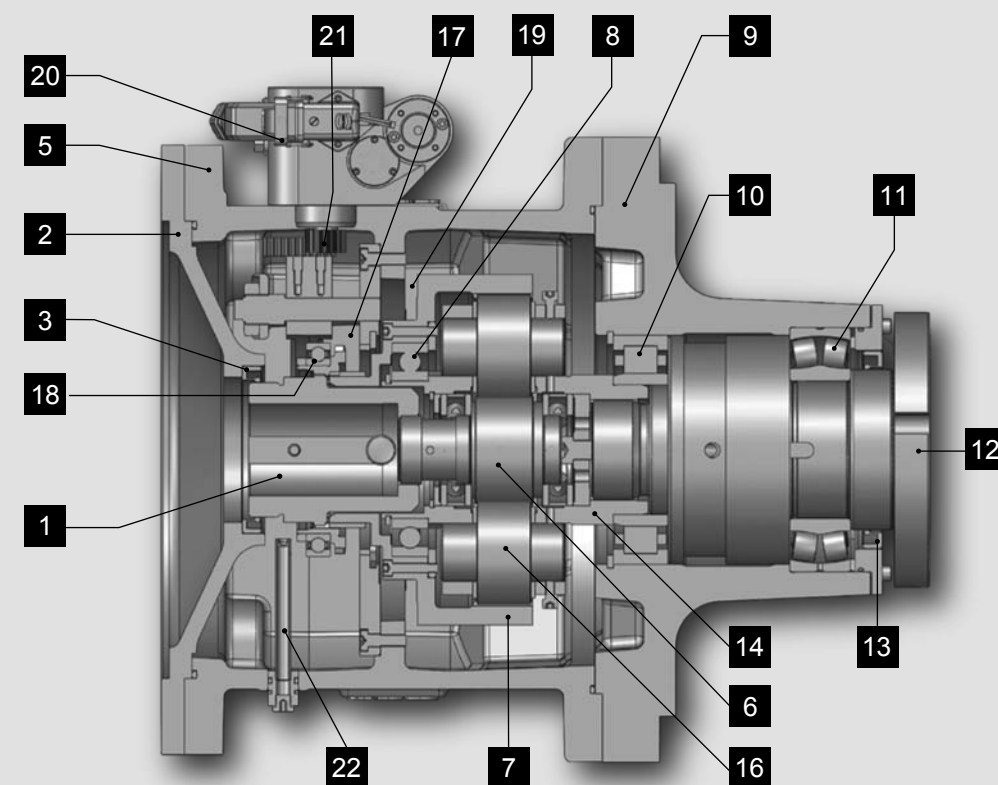
Lubrication :

- 22: Oil inlet pipe

GTP-2G250/300 INLINE



GTP-2G800 Standard



Lubrication :

- 22: Oil inlet pipe

			Ratio		2G120 2G121		2G250		2G300		2G600
Nominal data :											
Motor frame size	(mm)				100/112		132		160		180
Nominal power	(KW)				19		39		47		63
Nominal speed	(min ⁻¹)				1500		1500		1500		1000
Nominal input torque (continuous operation S1)	(Nm)				120		250		300/250*		600
Output torque	(Nm)		1.00		120		250		300		600
	(Nm)		4.00		480		1000		1200		2400
	(Nm)		4.91		589						
	(Nm)		5.00								3000
	(Nm)		5.50				1375		1375		
Maximum data :											
Max. Torque in Nm(intermitt loading S6 cycle duration 10 min, ED. max. 60%)											
Input	(Nm)				140		400		400		840
Output (max. accelerating torque)	(Nm)		1.00		140		400		400		840
	(Nm)		4.00		560		1600		1600		3360
	(Nm)		4.91		687						
	(Nm)		5.00								4200
	(Nm)		5.50				2200		2200		
Max. permitted input speed	(min ⁻¹)										
In reduction ratio i≠1	(min ⁻¹)		≠1 ¹⁾		8000		6300		6300		5000
Direct drive i = 1	(min ⁻¹)		1 ¹⁾		12000 ³⁾		10000 ^{3) 2)}		10000 ^{3) 2)}		5000
Max. vibration value	(mm/s)		≤		1.0		1.0		1.0		1.5
At reference speed	(min ⁻¹)				6000		5000		5000		4000
Max. axial force in reduction ratio	(N)		4.00				3964		4756		7253
In counter clockwise (ccw) operation	(N)		4.91								
running and max. input torque	(N)		5.00								9519
see permissible axial force for motor shaft	(N)		5.50				5288		5288		
Mass moment of inertia ¹⁾	(J in kgcm ²)		1.00		110		270		270		
Output			4.00		144		570		570		
Input					9		36		36		
Operating data :											
Oil fill volume in dm ³	Horizontal (B5 Splash)				1.0/1.4		1.5		2.7		5.4
	Vertical (V1 Splash)				1.3/1.9		1.9		3.1		4.3
					For V1 installation position, it's recommended by recirculating lubrication. If by splash lubrication, please refer to the oil volume as above shown.						
Oil grade :					HLP 68 as per ISO VG 68 HLP 46 as per ISO VG 46						
Approx oil fill in dm ³ oil level in middle of oil sight glass is most accurate reading	Vertical (V1/V3) Horizontal (B5)				Recirculating lubrication						
Oil grade :					HLP 32 as per ISO VG 32 HLP 22 as per ISO VG 22 for V1 and V3 installation position oil recirculating system is necessary						
Oil change interval					Every six months or 2000 working hours						
Oil temperature					Max.120° C, depending on application, installation position, lubrication and cooling condition						
Weight :											
Standard	(approx.kg)				43/53		69		93		177
Electrical Connection :											
For shifting unit											
Power consumption	W				120		120		120		120
Supply voltage (at shifting unit)	V				24 ± 10%		24 ± 10%		24 ± 10%		24 ± 10%
Current supply at 24V	A				5		5		5		5

Customer can define bearing load and lifetime. See installation drawings or page 13 for bearing data.

- 1) Admissible with oil cooler, otherwise n_{max.} for reduction ratio.
- 2) Max. speed only permitted with oil connection at port K or port L.
- 3) Max. speed only permitted with integrated oil channel versions.
Please make sure the pressure and volume of oil according operating operating instruction.
* i=5.5: reduced input torque.

		Ratio	2G800 2G801/2G802 Standard	2G1000
Nominal data :				
Motor frame size	(mm)		180/200/225	180/200/225
Nominal power	(KW)		84	130
Nominal speed	(min ⁻¹)		1000	1200
Nominal input speed (continuous operation S1)	(Nm)		800/750*	1080
Output torque	(Nm)	1.00	800/750*	
	(Nm)	4.00	3200	
	(Nm)	5.20	3900	
	(Nm)	5.80		6264
Maximum data :				
Max. Torque in Nm (intermitt loading S6 cycle duration 10 min, ED. max. 60%)				
Input	(Nm)		900/800*	1200
Output (max. accelerating torque)	(Nm)	1.00	900/800*	1200
	(Nm)	4.00	3600	
	(Nm)	5.20	4160	
	(Nm)	5.80		6960
Max. permitted input speed	(min ⁻¹)			
In reduction ratio i≠1	(min ⁻¹)	≠1	5000	5500
For direct drive i = 1 ¹⁾	(min ⁻¹)	1 ¹⁾	5000/6000 ²⁾	5500
Max. vibration value	(mm/s)		2.0	2.8
At reference speed	(min ⁻¹)		4000	4000
Max. axial force in redction ratio	(N)			
Max. axial force in redction ratio in counter clockwise (ccw) operation running and max. input torque see permissible axial force for motor shaft	(N)	4.00		
Mass moment of inertia	(J in kgcm ²)	1.00	1956	
Output		4.00	1766	
Input			110	
Operating data :				
Approx. oil fill in dm ³ oil level in middle of oil sight glass is most accurate reading	Vertical (V1) Horizontal (B5)	Recirculating lubrication		
Oil grade :		HLP 46 as per ISO VG 46 HLP 32 as per ISO VG 32 For V1 and V3 installation position oil recirculating system is necessary		
Oil change interval		Every six months or 2000 working hours		
Oil temperature		Max.120°C, depending on application, installation position, lubrication and cooling		
Weight :				
Standard	(approx.kg)		180	200
Electrical connection for shifting unit:				
Power consumption	W		120	120
Supply voltage (at shifting unit)	V		24 ± 10%	24 ± 10%
Current supply at 24V	A		5	5

Customer can define bearing load and lifetime. See installation drawings or page 13 for bearing data.

- 1) Admissible with oil cooler, otherwise n_{max.} for reduction ratio.
- 2) 5000rpm for flange output / 6000rpm for gear output or inline output.
* i=5.2: reduced input torque.

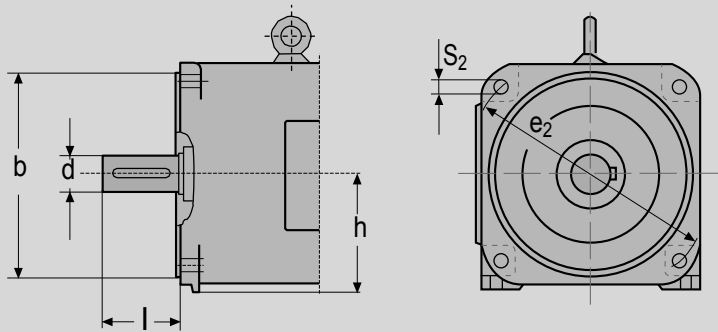
Standard Motor connection Dimensions

Gearbox sizes :

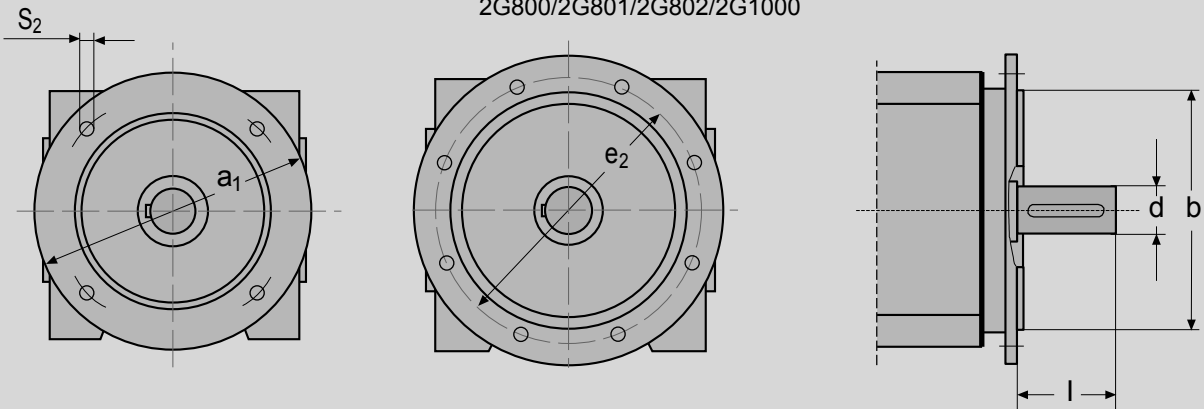
	2G120	2G121	2G250	2G300	2G600	2G801	2G802	2G1000	
Motor frame size	100	112	132	160/180	160/180/200	200	225	200	225
Standard motor connection dimensions	EN 50347: 2001								
h	100	112	132	160/180	160/180/200	200	225	200	225
d	32/38/48	42/48	42/48/55/60	55/60	60/65/75/80	65/75/80	75/80	75	75
l	80 ± 0.1	110 ± 0.1	110 - 0.2 140 - 0.2	110 - 0.2 140 - 0.2	140 - 0.2 170 ± 0.2	140 - 0.2 170 ± 0.2	140 ± 0.2	140 ± 0.2	140 ± 0.2
b	180	230/250	230/250/300	300	300/350	350	450	450	450
e ₂	215	265	300/350	350/400	400	400	500	500	500
a ₁	-	-	-	-	450	450	550	550	550
S ₂	14	15	18	18	18	19	19	19	19

All the dimensions are in mm.

2G120/2G121/2G250/2G300/2G600



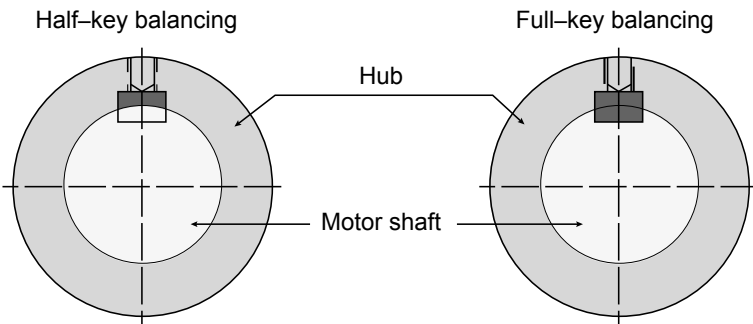
2G800/2G801/2G802/2G1000



Motor output shaft with standard key

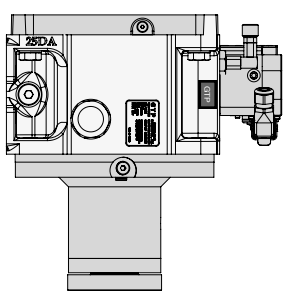
Gearbox sizes GTP-2G	Shaft diameter [mm]	Key	Key length
2G120/121	38	10x8	70
	32	10x8	70
	42	12x8	90
2G250	48	14x9	90
	42	12x8	90
	48	14x9	90
2G300	55	16x10	90
	60	18x11	110
	48	14x9	90
2G600	42	12x8	90
	60	18x11	110
	55	16x10	90
2G800	60	18x11	125
	65	18x11	125
	70	18x11	125
2G801	75	20x12	125
	80	22x14	150
	80	22x14	125
2G802	80	22x14	125
	90	25x14	125
	95	25x14	125
2G1000	100	28x16	125

See DIN ISO 8821
For Siemens motors, only full-key balanced motorshaft can be used.
Smooth motor shaft application on request.

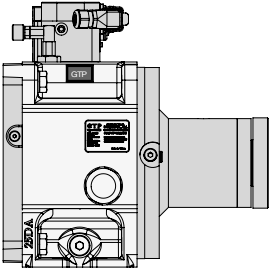
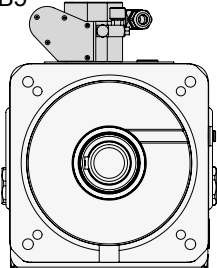


Installation positions

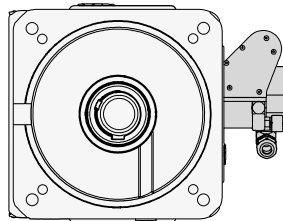
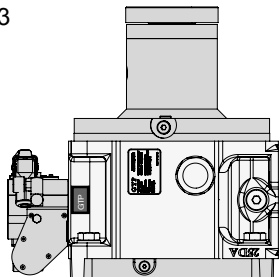
Vertical V1



Horizontal B5



Vertical V3



Horizontal B5
Shifting unit on right side
(view from input)

Gearbox rotated along
longitudinal axis
(for 2G120/2G121
2G250/2G300/2G600)

Output / Motor interface

Gearbox sizes :

GTP-2G	2G120	2G121	2G250	2G300	2G600	2G800	2G801	2G802	2G1000
Gearbox output									
Ø 100	+	+							
Ø 118			+	0					
Ø 130			0	+					
Ø 140					0				
Ø 150					+				
Ø 38	0	0							
Ø 42			0	0					
Ø 55			0	0					
Ø 60					0				
Ø 65					0	0	0	0	0
Ø 180						+	+	+	+
Ø without output						0	0	0	0
Ø 38 INLINE	0	0							
Ø 42 INLINE			0	0					

+ = Standard
0 = Option

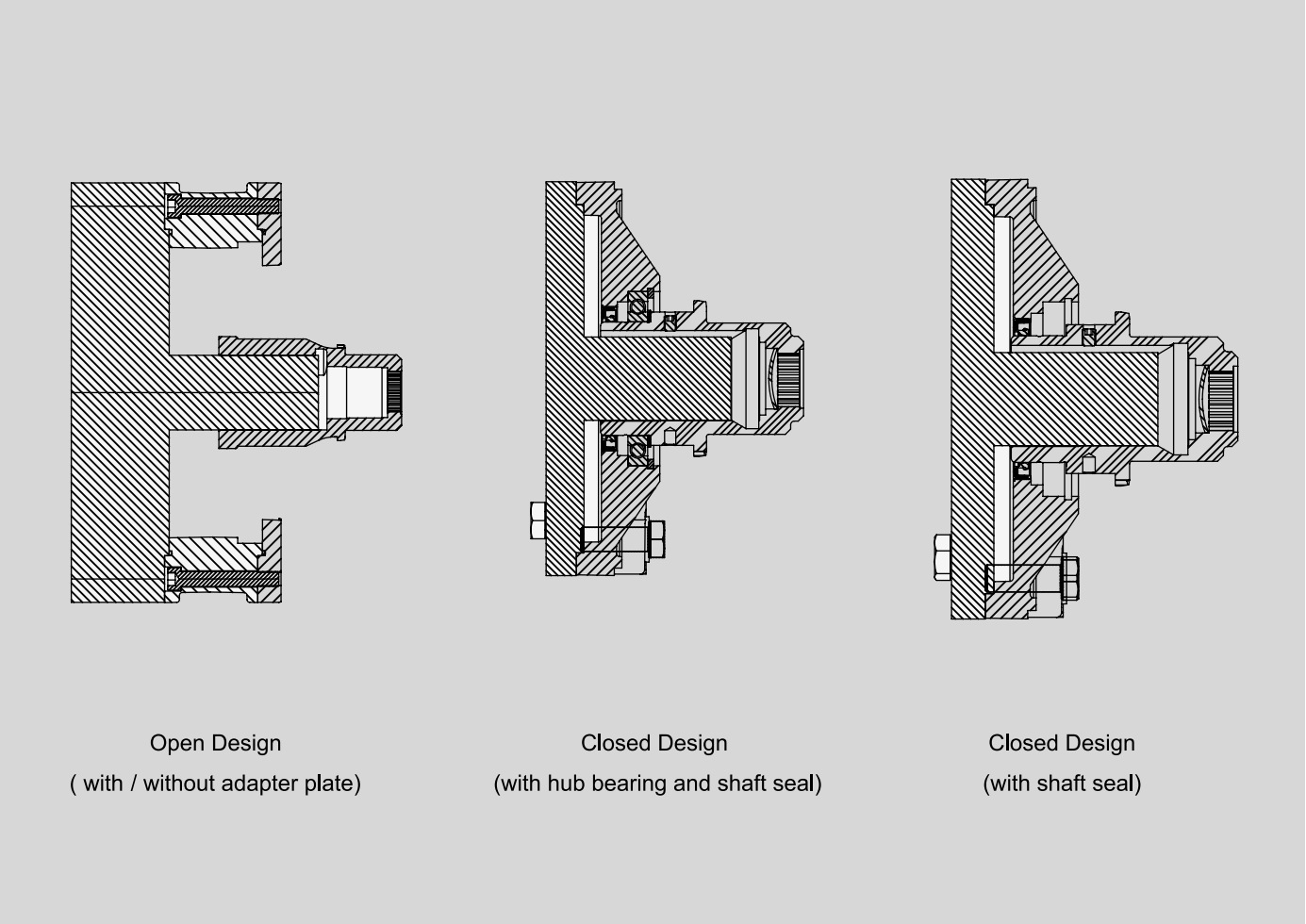
There are three choices of different output variants. The standard long bearing base output flange version is used for belt drives, allowing high cantilever forces. For 2G250/2G300/2G800, an extended output version is optional for even higher belt forces. Further options include short output housings, such as **GTP-2G** INLINE, for space saving direct drives. This version is supplied as a standard with angular contact bearings.

There are two types of balancing : half-key and full-key. In the case of full-key balancing, the motor shaft is balanced with a fitted key, the hub without. The length of the fitted key is unimportant in this instance. In the case of half-key balance, however, the keyway is partially filled with a balance compensator. The shape, length, and position of the keyway must be adapted. For this reason, it is necessary to provide us with details of the motor, including the relevant dimensions and balancing type, when ordering.

Note

For motor gearbox units that are fixed in the machine with the gearbox output housing/flange only, no preload support on the motor B-side is permitted.

Connection options



Input interface :

Closed design (with hub bearing and shaft seal)
There is a version with a ball bearing available for certain motors. The hub in this version is also fixed by the bearing to prevent axial hub movement, and to prevent axial forces from the helical gearing on the motor shaft (see technical data on page 8). Assembly onto a spindle motor is made easier due to a fixed hub position as supplied by the factory.

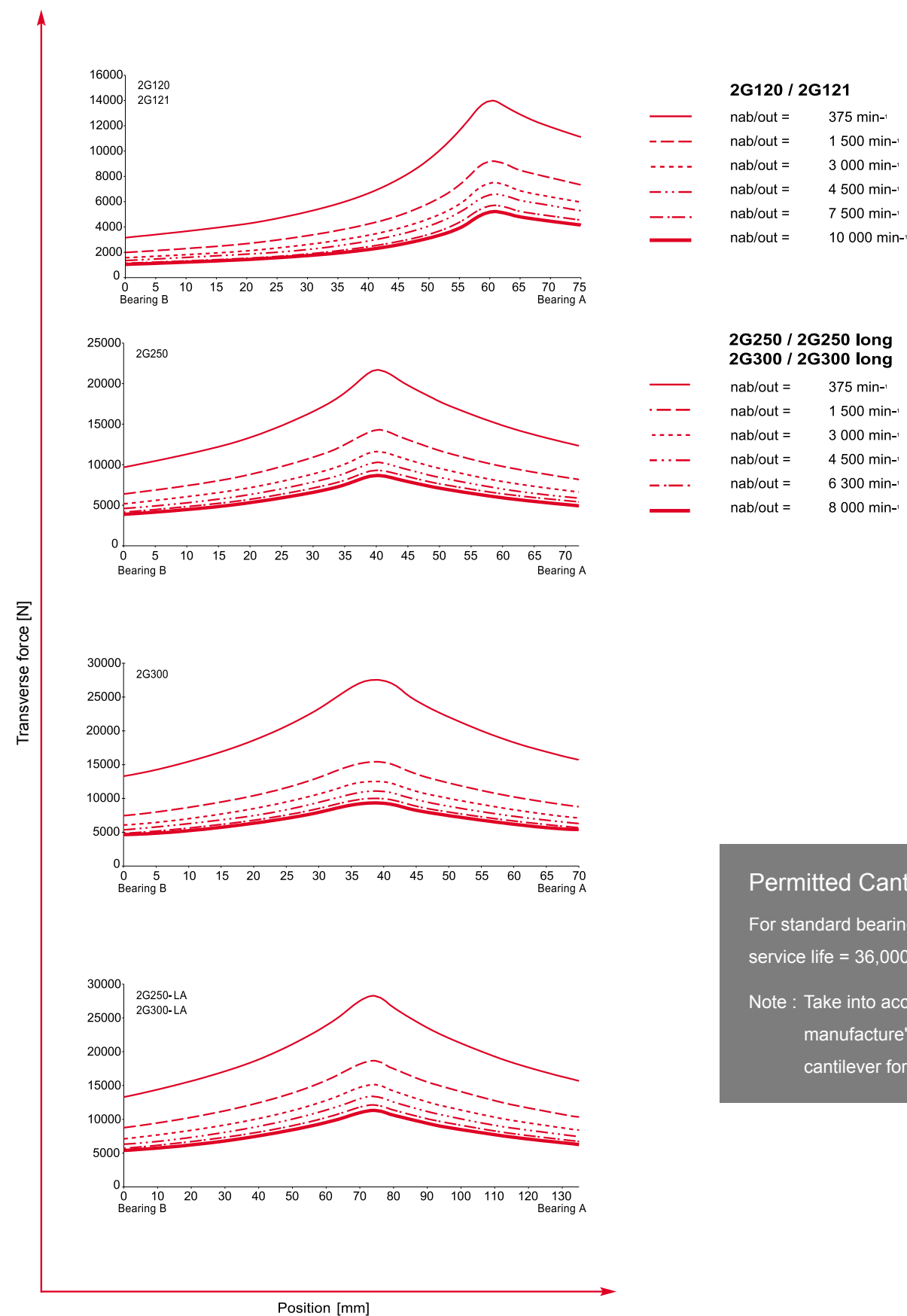
Closed version (with shaft seal)
This version incorporates an adapter plate with a shaft seal, which means that the gearbox forms as a compact, closed unit.

Open design
The open version gearbox is with or without an adapter plate. Sealing is achieved with a motor shaft seal.

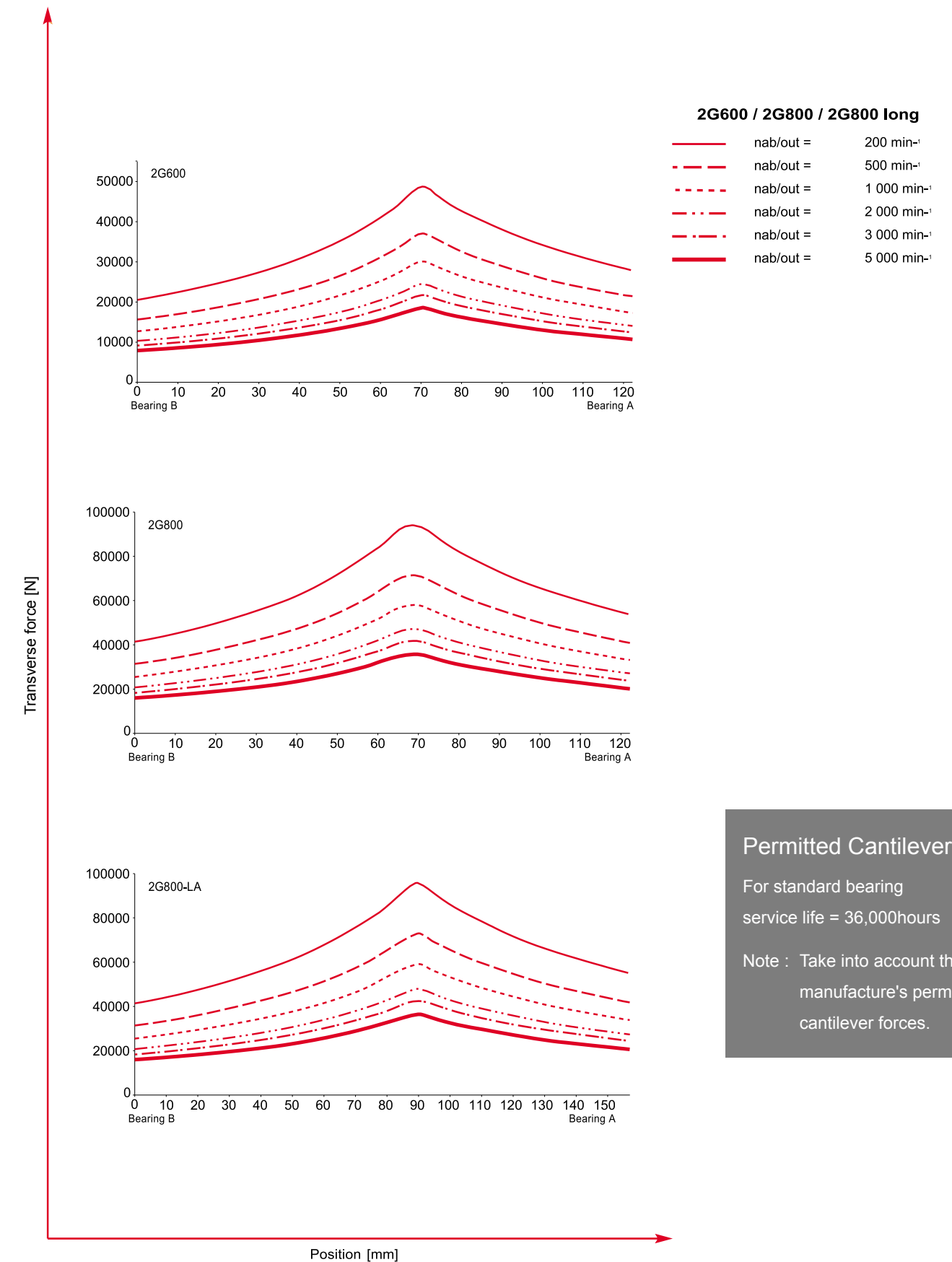
Input flange
Besides the classic motor - gearbox adaptation (motor shaft, key way, hub) we offer, on request, a gearbox with an input flange to mount a pulley.

The output bearings vary depending on the type and level of load on the output shaft. Cylindrical roller bearings are used to cope with high radial forces, e.g. in belt pulley drives. By contrast, the angular - contact ball bearings are suitable for coaxial drives, low radial backlash, or axial forces. The flexible design of the output housing and shafts allows a range of selections.

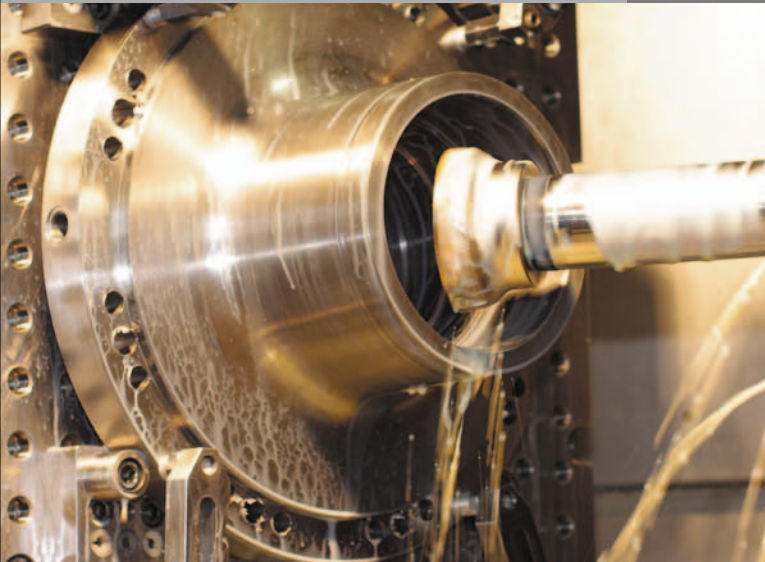
Versions and Lifetime Calculation based on XY-method Belt must be between output bearings



Versions and Lifetime Calculation based on XY-method Belt must be between output bearings



Application and Examples



Extreme Milling Work

Class 2 : Normal torsional backlash <20 arcmin for lathes, milling machines, and machining centers used to execute extreme milling work, e.g. tool side milling cutters with very coarse index/division (interrupted cutting), workpieces made from tough materials, milling of ribbed workpieces.

Highly-dynamic Machine Tools

Class 1 have reduced torsional backlash <15 arcmin, in addition to be used in lightweight highly-dynamic machine tools incorporating components with high internal elasticity; this is also designed to prevent resonance vibration.

Torsional backlash

Two backlash classes in reduction mode are available :

Class 1 :

Reduced torsional backlash <15 arcmin

Class 2 :

Normal torsional backlash <20 arcmin

Lubrication

Splash type lubrication

The standard gearbox version V1/B5 has a splash type lubrication. Splash type lubrication is suitable for intermittent operation. In this instance, frequent gear changes, varying speeds, and idle time (e.g. due to retooling) are prerequisites.

Oil level sensor is on request.

Recirculating lubrication

The 2G120/2G121/2G250/2G300/2G600 gearboxes (vertical V1 and V3 installation positions) require recirculating lubrication. In this instance, the type of recirculating lubrication depends on the operating temperature levels required.

The 2G800/2G801/2G802/2G1000 gearboxes must always be operated with recirculating lubrication (refer to installation drawings).

Forced recirculating lubrication

Some applications require a very low operating temperature level. Forced recirculating lubrication is recommended in such instances. Figures on page 17/18 show the possible oil inlet and outlet positions on the gearbox. Please refer to the relevant installation drawings for detailed dimensions.

Standard recirculating lubrication in V1/B5 with oil tank installation

The oil inlet is attached in place of the oil drain plug.

The oil flow rate is 2.5dm³/min. (only for 2G120/2G121/2G250/2G300) ; 3.0dm³/min. (only for 2G600) ; 3.0dm³/min. (only for 2G800). In the case of the V3 vertical installation position, the lubrication oil can be supplied in either a radial or central direction.

The tank of the pump unit must be ventilated. Oil back pressure in the return pipe to the gearbox must be avoided (Ømin. 20mm). The tank capacity should be at least ten times of the recirculating oil quantity. A 60µm filter and pressure limitation valve should also be used as a safeguard.

A heat exchanger is installed in the recirculating lubrication system to assure additional temperature reduction. For best cooling results, without any influence on lubrication, various connection parts for different installation positions and operating modes are provided.

Note

For continuous operation in direct drive, one gear change per hour with a short turn in reduction ratio is mandatory. If this is impossible, please request a special solution.

Connections for recirculating lubrication

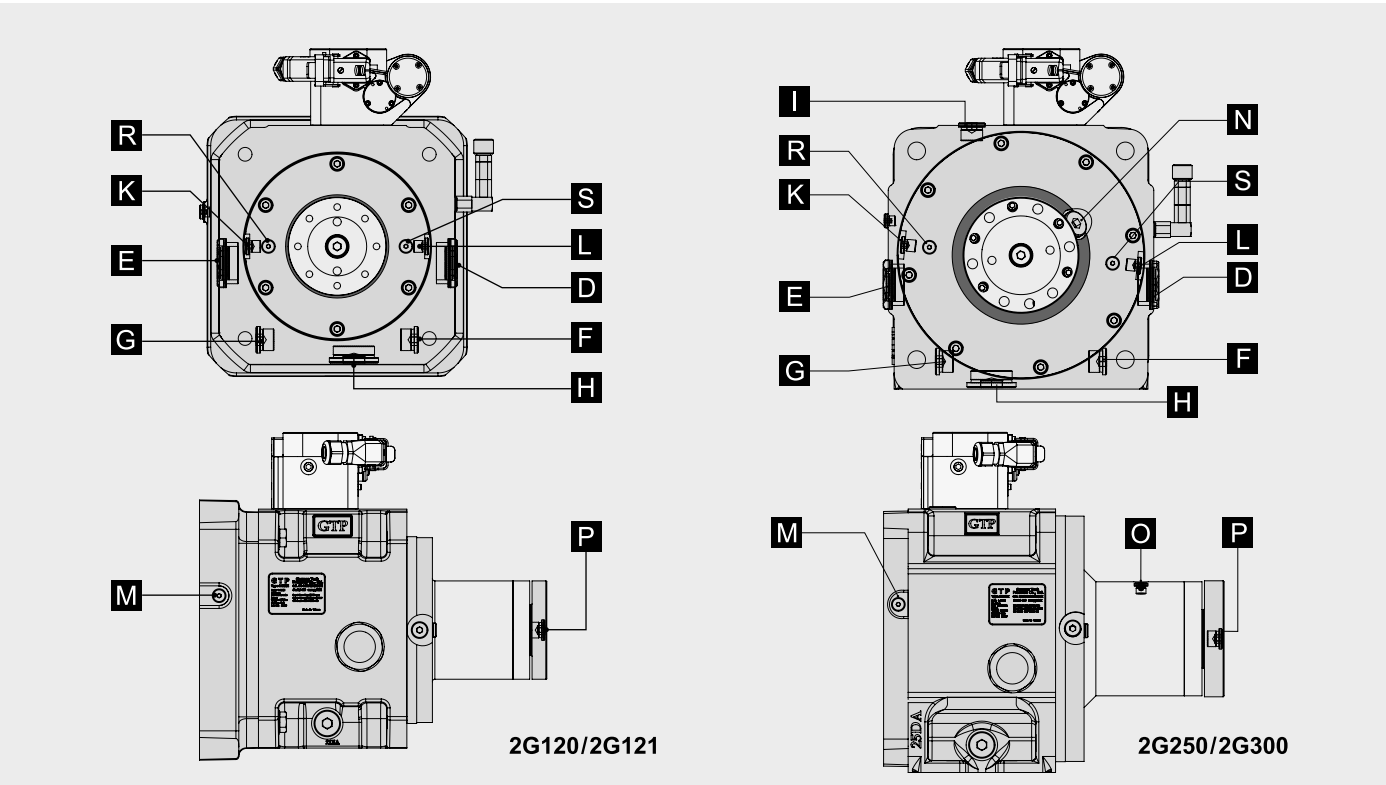
2G120/2G121				2G250/2G300/2G600			
Installation Position	Oil inlet*	Max. pressure	Oil outlet*	Installation Position	Oil inlet*	Max. pressure	Oil outlet*
V1 (closed version)	M and K/R or L/S additional possible	2.5-3.0 bar	D/E	V1, V3 (closed version)	M and K/R or L/S additional possible	2.5-3.0 bar	D/E
V3	K/R or L/S additional possible	2.5-3.0 bar	H	V1, V3 (open version)	X	X	X
B5	G or F	2.5-3.0 bar	D/E	B5	K or R or M	2.5-3.0 bar	D/E
B5 turned*	G or F	2.5-3.0 bar	H	B5 turned*	K or R or M	2.5-3.0 bar	H

*View toward gearbox output :

- D = Mainly counter clockwise rotation
E = Mainly clockwise rotation

Note : For 2G120/121/250/300 type.

- Gear-Box operating at permitted highest speed:
- Please make sure the minimum flow-rate is 3dm³/min. and the minimum oil pressure is 3 bar when you use only one channel (K port or L port) for channel lubrication system.
- If you use two channel (K port and L port) for channel lubrication system, the minimum flow-rate is 2.5dm³/min. and oil pressure is 2.5 bar



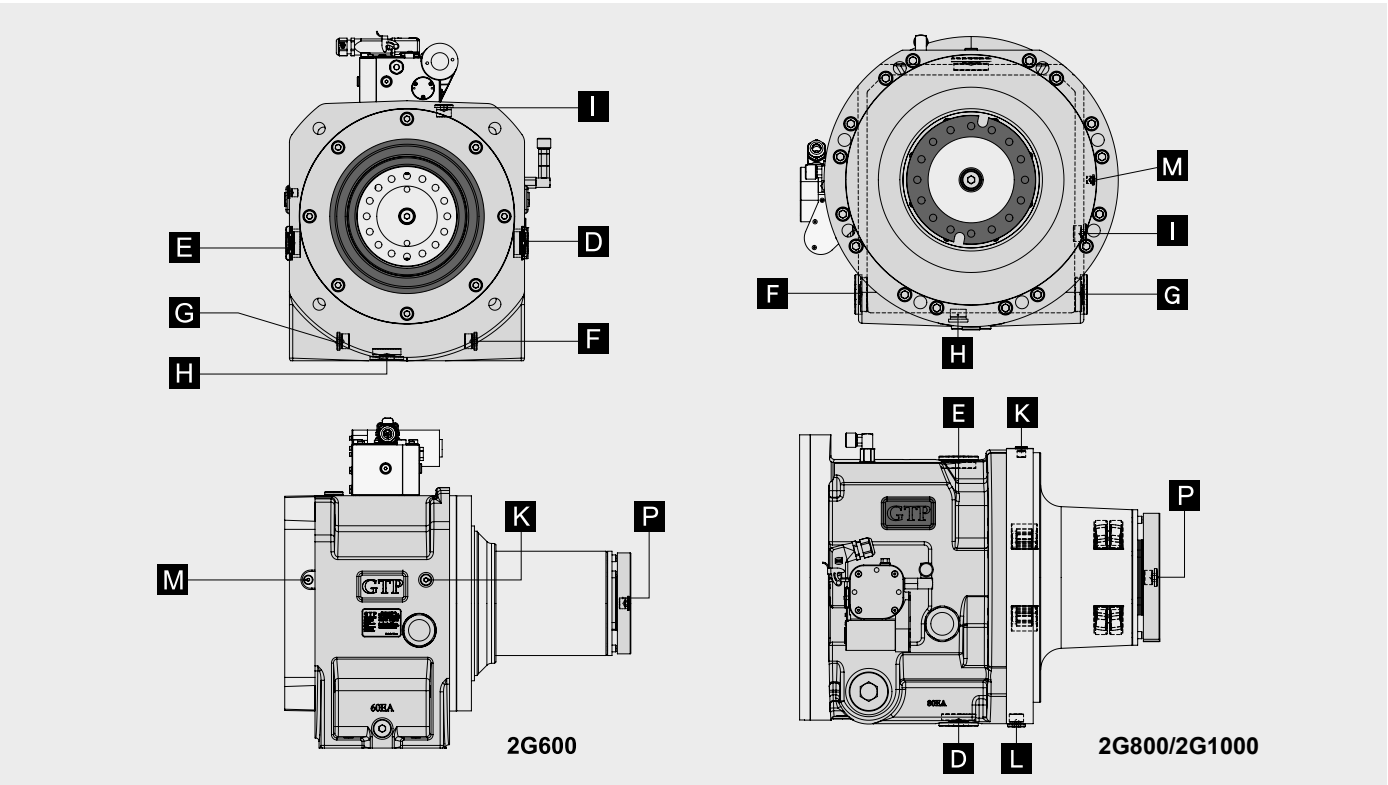
Connections for recirculating lubrication

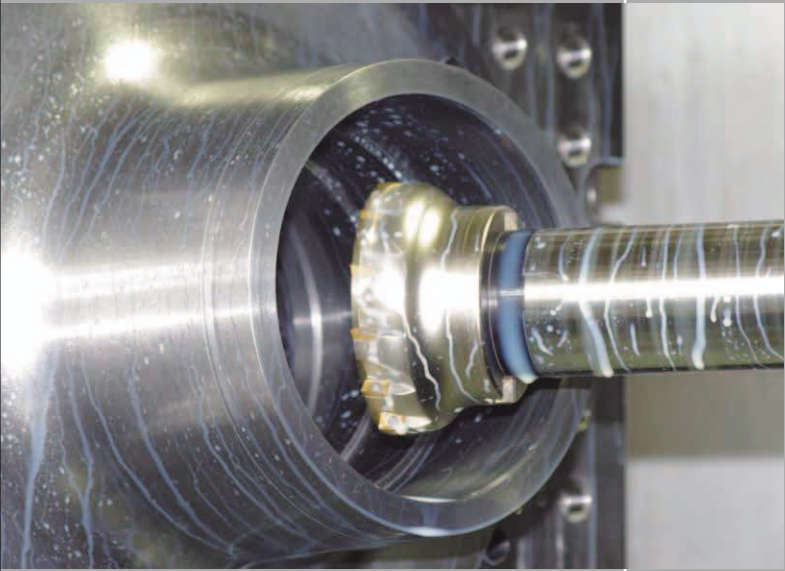
2G800				2G1000		
Installation Position	Oil inlet*	Max. pressure	Oil outlet*	Oil inlet*	Max. pressure	Oil outlet*
V1, V3 (closed version)	M K	3-5 bar	D/E or G/F	M K	3-5 bar	D/E or G/F
V1, V3 (open version)	idem	idem	idem	idem	idem	idem
B5	M K	3-5 bar	G/F or D	M K	3-5 bar	G/F or D
B5 turned*	idem	idem	idem	idem	idem	idem

*View toward gearbox output :

- D/G = Mainly counter clockwise rotation
E/F = Mainly clockwise rotation

In V3 recirculating lubrication is necessary for 2G250/300/600.



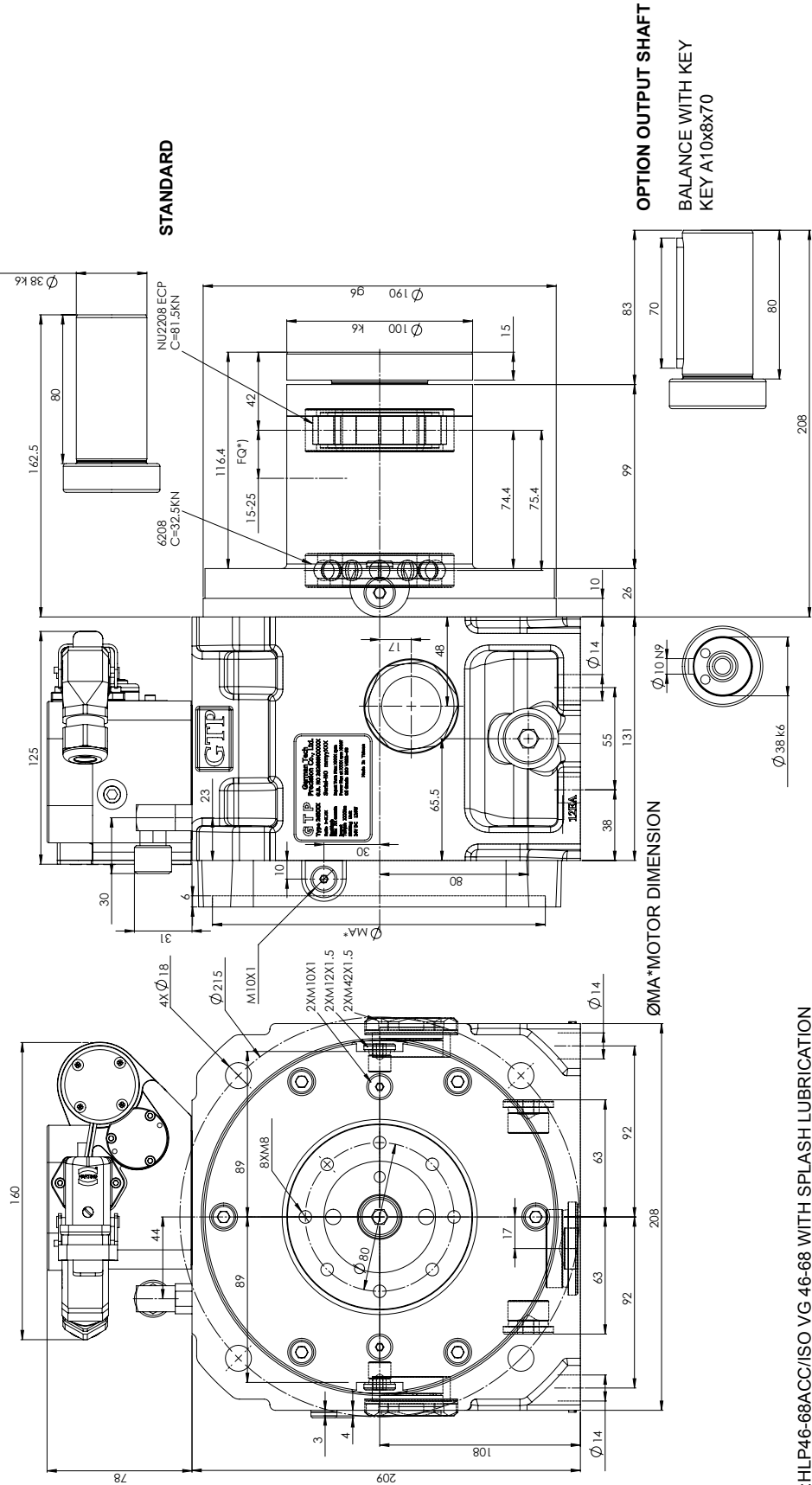


Installation Drawings

2G120	page 20
2G121	page 21
2G250	page 22
2G300	page 23
2G600	page 24
2G800	page 25
2G801	page 26
2G802	page 27
2G1000	page 28

STANDARD
 SHIFTING UNIT WITHOUT NEUTRAL POSITION
 SHIFTING UNIT WATTS 120W AT 24 VDC

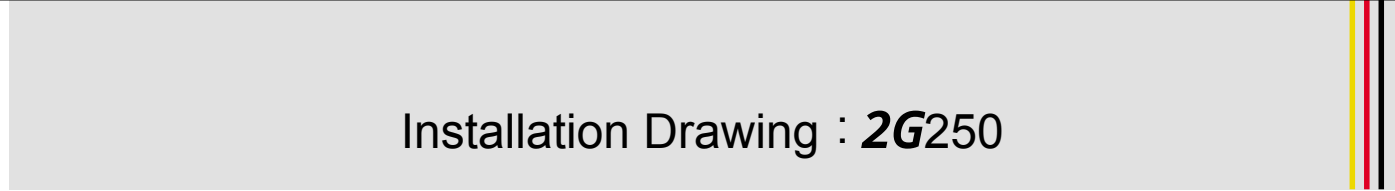
2G120 INLINE



OIL GRADE:HLP46-68ACC/ISO VG 46-68 WITH SPLASH LUBRICATION
 HLP22-32ACC/ISO VG 22-32 WITH RECIRCULATING LUBRICATION

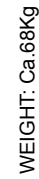
STANDARD	OPTION	*) ASSUMED OF RESULTING PULLEY FORCE FOR BEARING CALCULATION	OIL LEVEL SIGHT GLASS (LEFT AND RIGHT)
TRANSMISSION RATIO : $i_1=4.0$ $i_2=1.0$	$i_1=4.91$ $i_2=1.0$		
WEIGHT: Ca.42Kg			

STANDARD

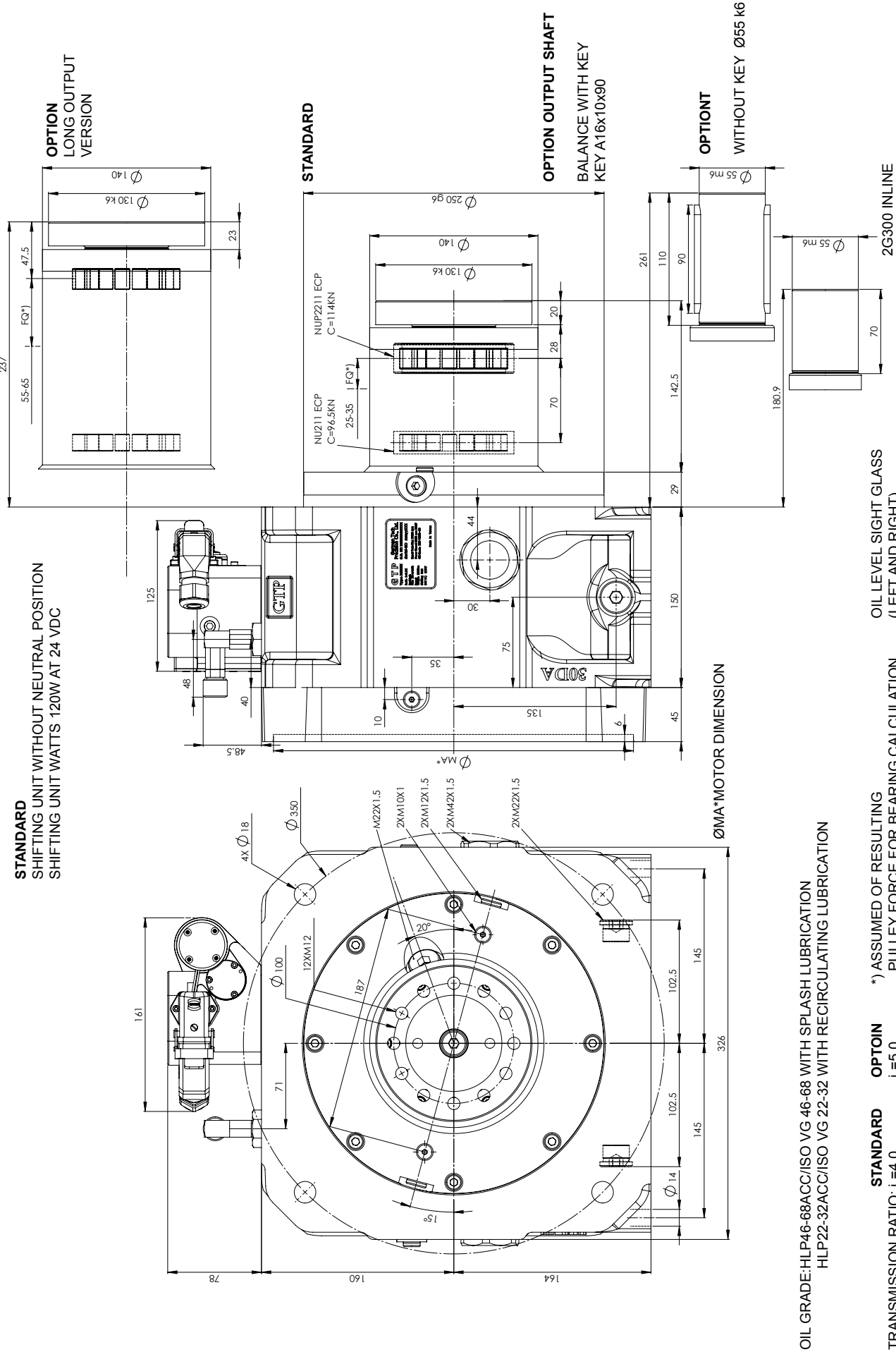


Installation Drawing : **2G250**

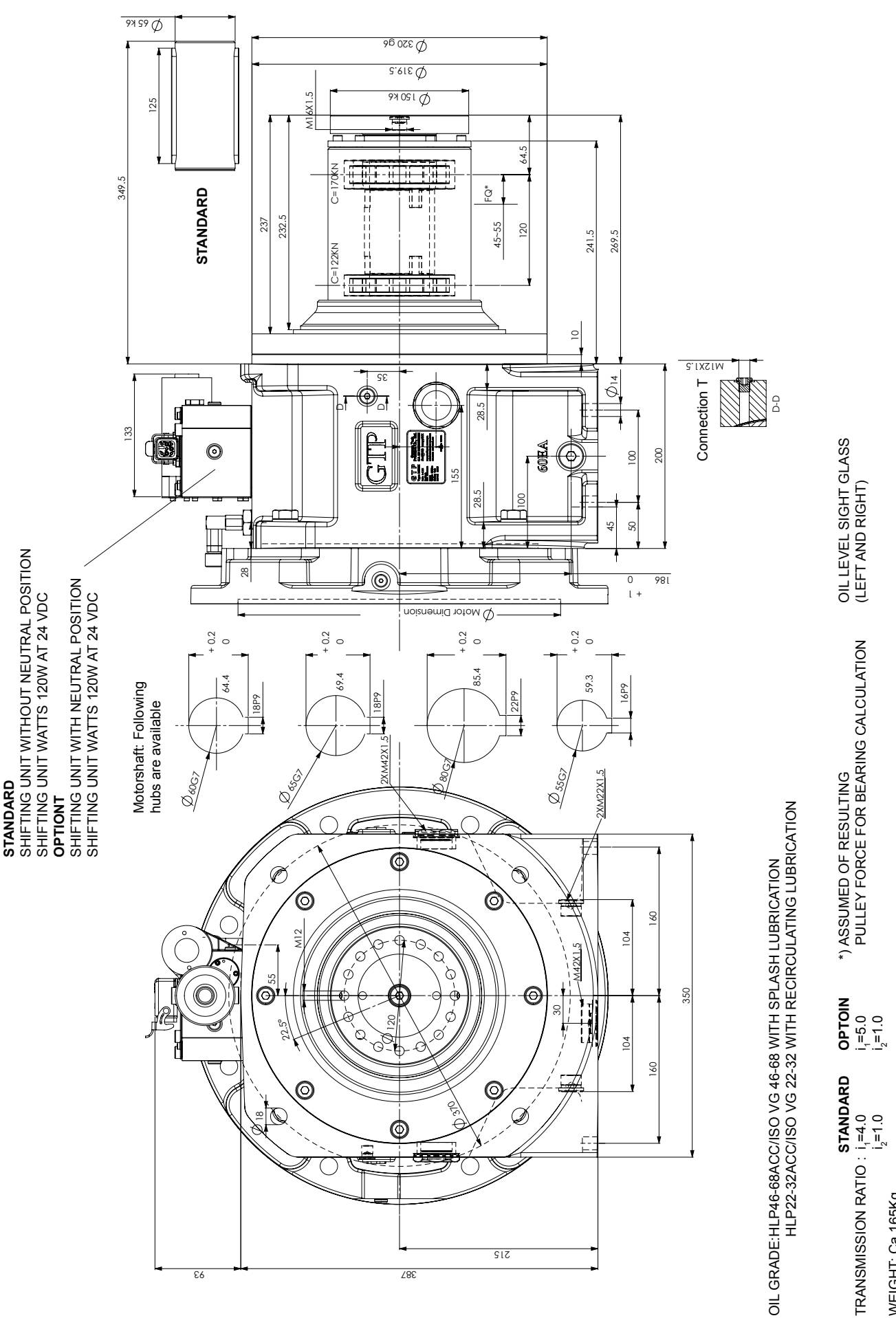
STANDARD



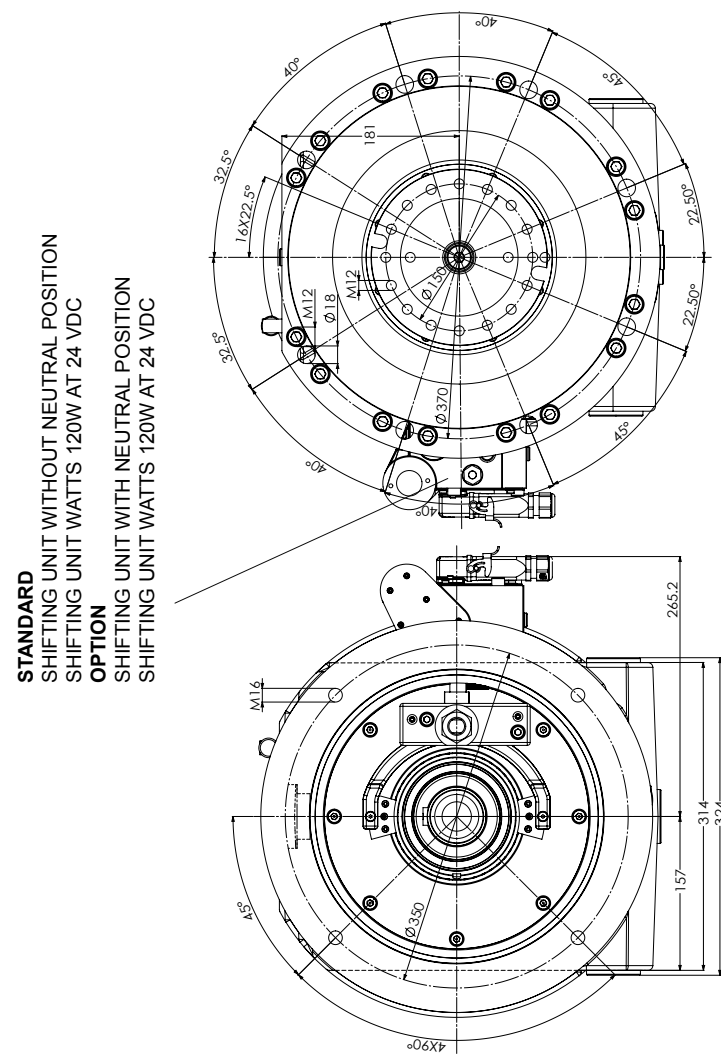
Installation Drawing : **2G300**



Installation Drawing : **2G600**



Installation Drawing : **2G800**



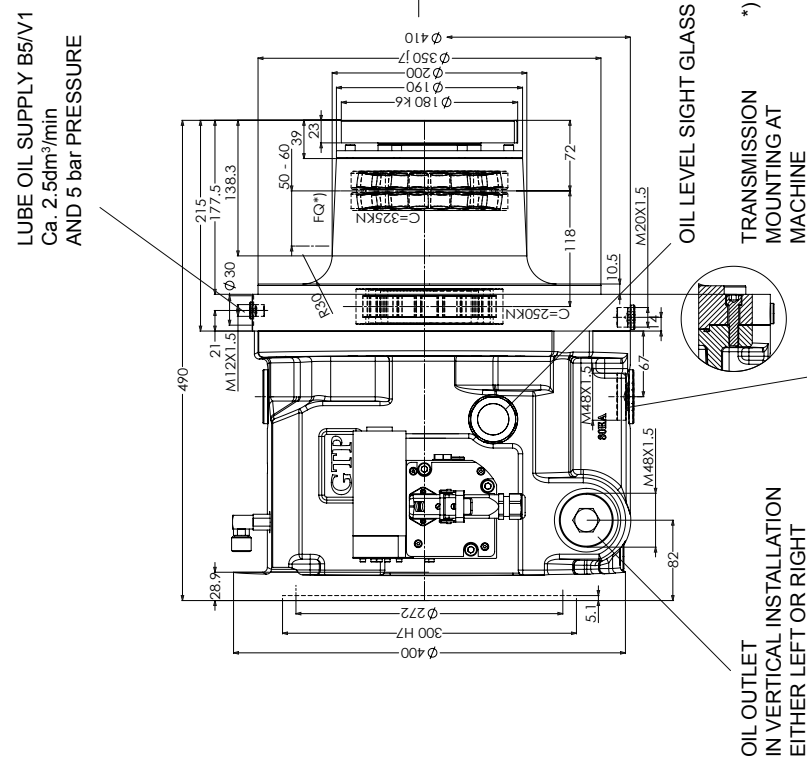
*) ASSUMED OF RESULTING
PULLEY FORCE FOR BEARING CALCULATION

2G800

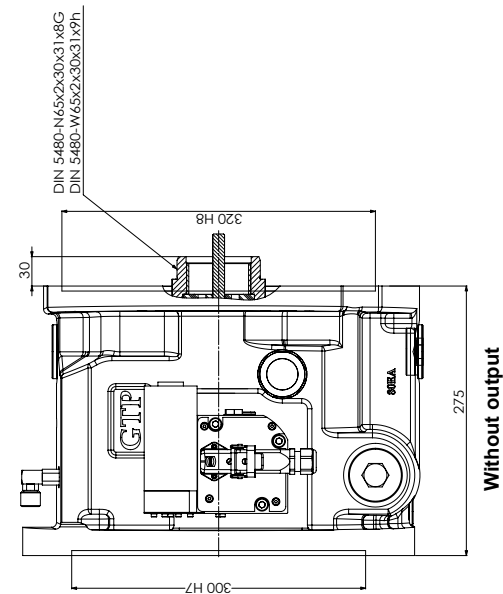
20000
OIL GRADE: HLP 46 ACC. TO ISO VG 46 WITH RECIRCULATING LUBRICATION
HLP 32 ACC. TO ISO VG 32 WITH RECIRCULATING LUBRICATION

TRANSMISSION RATIO:	STANDARD	OPTION
$i_1=4.0$		$i_1=5.2$
$i_2=1.0$		$i_2=1.0$

WEIGHT: Ca.175Kg

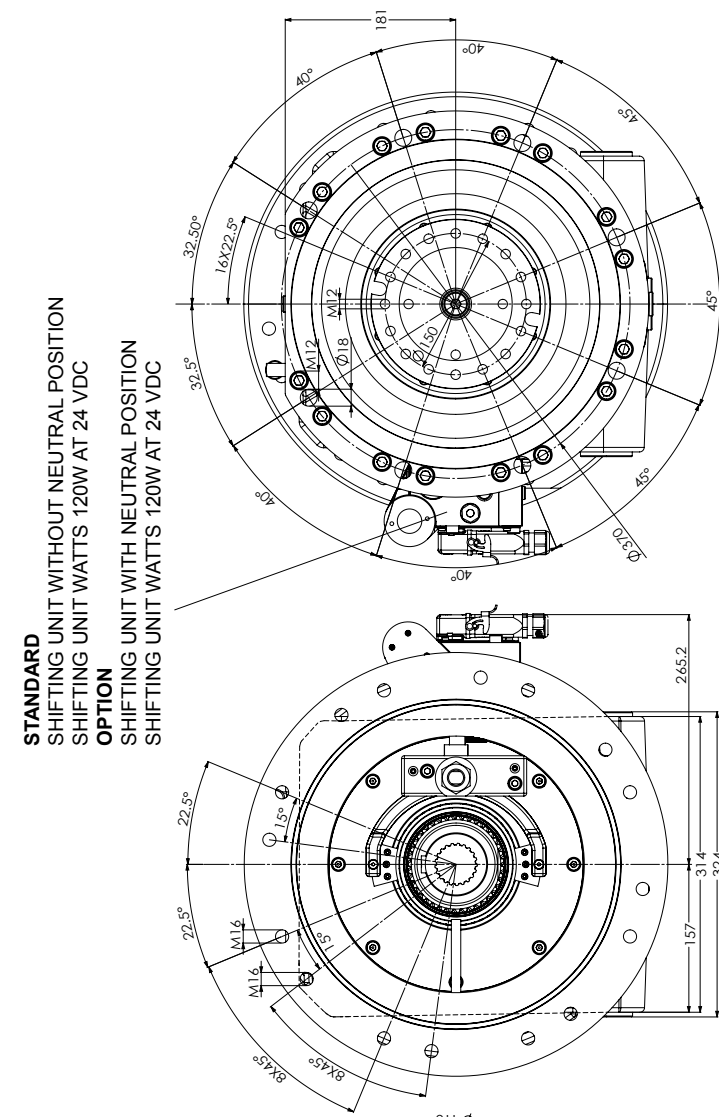


OIL OUTLET
IN VERTICAL INSTALLATION V1



Without output

Installation Drawing : **2G801**



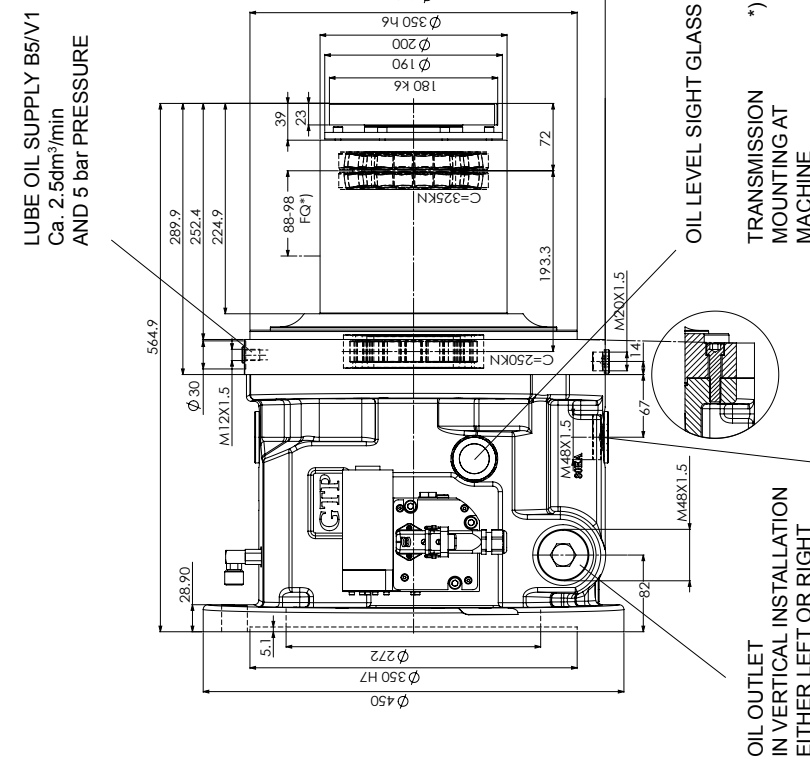
*) ASSUMED OF RESULTING
PULLEY FORCE FOR BEARING CALCULATION

2G801

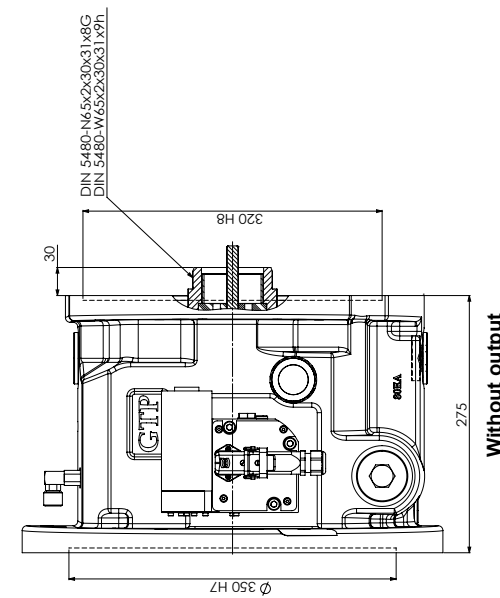
ZG801
OIL GRADE: HLP 46 ACC. TO ISO VG 46 WITH RECIRCULATING LUBRICATION
HLP 32 ACC. TO ISO VG 32 WITH RECIRCULATING LUBRICATION

STANDARD	OPTION
TRANSMISSION RATIO : $i_1 = 4.0$	$i_1 = 5.2$
$i_2 = 1.0$	$i_2 = 1.0$

WEIGHT: Ca.175Kg

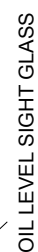
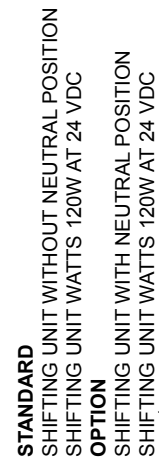


OIL OUTLET
IN VERTICAL INSTALLATION V1



Without output

Installation Drawing : **2G802**

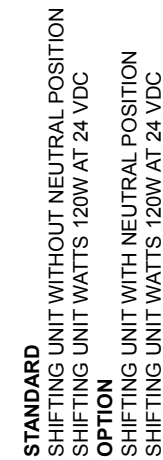


OIL GRADE: HLP 46 ACC. TO ISO VG 46 WITH RECIRCULATING LUBRICATION
HLP 32 ACC. TO ISO VG 32 WITH RECIRCULATING LUBRICATION

STANDARD	OPTION
TRANSMISSION RATIO: $i_1=4.0$	$i_1=5.2$
$i_2=1.0$	$i_2=1.0$

WEIGHT: Ca.175Kg

Installation Drawing : **2G1000**



ZG-1000
OIL GRADE: HLP 46 ACC. TO ISO VG 46 WITH RECIRCULATING LUBRICATION
HLP 32 ACC. TO ISO VG 32 WITH RECIRCULATING LUBRICATION

STANDARD
TRANSMISSION RATIO: $i_1=5.8$
 $i_2=1.0$

WEIGHT: Ca.200Kg

GTP- 2G Standard, Inline

Ordering numbers for gearbox types : 2G120/2G121

Note:

1) RWDR = Radial shaft seal

* Motor-specific, on request

2) Motor shaft 55mm, keyless only.

Note:			2	G						—							
			1	2	3	4	5	6		7	8	9	10	11	12	13	14
Two-speed gearbox																	
Motor balancing :																	
Without keyway	1																
Without keyway-250mm	2																
Full-key-230 for 2G121	3																
Full-key	4																
Half-key	5																
Half-key-250 for 2G121	6																
Input interface :																	
Closed with hub, hub bearing, RWDR ¹⁾ *	3																
Closed with hub, RWDR ¹⁾ * without bearing	4																
Flange input (Ø=100k6)	9																
*Gearbox type :																	
for motor frame size/ratio																	
100/i ₁ =4.00	12																
100/i ₁ =4.91	09																
112/i ₁ =4.00	11																
112/i ₁ =4.91	08																
Output bearing :																	
Roller bearing/ball bearing	3																
Angular contact bearing	4																
Spindle Ang. ball bearing	5																
Gearbox output :																	
a1=38mm shaft with single key	B																
a1=100mm	C																
a1=38mm smooth shaft, without key	L																
a1=38mm shaft with double key, INLINE	P																
a1=38mm smooth shaft without key, INLINE	G																
Installation position :																	
V1/V3/B5/B5 turned(shifting unit on right side(view from input))	E																
V3 Central oil supply in Output shaft central/ Radial supply in bearing housing	B																
Motor shaft dimension "d"																	
Flange input	0																
55mm ²⁾	1																
32mm	2																
38mm	3																
42mm	4																
48mm	9																
Gearbox output torsional backlash																	
Standard torsional backlash max. 20 arcmin	3																
Reduced torsioanl backlash max. 15 arcmin	4																
Oil Level sensor																	
V1	S																
B5	H																
Non-shifter	Z																
Special application	A																

GTP- 2G Standard, Inline

Ordering numbers for gearbox types : 2G250/2G300

Note :

1) RWDR = Radial shaft seal

* Motor-specific, on request

Note :			2	G					—						—				
1) RWDR = Radial shaft seal			1	2	3	4	5	6		7	8	9	10	11		12	13	14	15
* Motor-specific, on request																			
Two-speed gearbox																			
Motor balancing :																			
Without keyway	1																		
Withot keyway-250mm	2																		
Full-key-230	3																		
Full-key	4																		
Half-key	5																		
Half-key-250	6																		
Input interface :																			
Closed with hub, hub bearing, RWDR ¹⁾ *	3																		
Closed with hub, RWDR ¹⁾ * without bearing	4																		
Flange input (Ø=118k6)	9																		
*Gearbox type :																			
for motor frame size/ratio																			
132/i ₁ =4	15																		
132/i ₁ =5.5	17																		
160/i ₁ =4 2G250	19																		
160/i ₁ =4 2G300	20																		
160/i ₁ =5.5 2G250	21																		
160/i ₁ =5.5 2G300	22																		
others	23																		
Output bearing :																			
Roller bearing	3																		
Angular contact bearing	4																		
Spindle Ang. ball bearing	5																		
Gearbox output :																			
a1=118mm (2G250)	F																		
a1=130mm (2G300)	J																		
a1=42mm (2G250) shaft with double key	K																		
a1=42mm smooth shaft without key	L																		
a1=55mm smooth shaft without key	N																		
a1=55mm smooth shaft without key, INLINE	H																		
a1=55mm (2G300) shaft with double key	M																		
a1=130mm wide bearing base	R																		
a1=118mm wide bearing base	S																		
a1=42mm shaft with double key, INLINE	P																		
a1=42mm smooth shaft without key, INLINE	G																		
a1=42mm smooth shaft without key(High rigidity)	Q																		
Installation position :																			
V1/V3/B5/B5 turned(shifting unit on right side(view from input))	E																		
Motor shaft dimension "d"																			
2G250 2G300																			
Flange input	0																		
42mm 55mm	1																		
48mm 48mm	2																		
55mm 42mm	3																		
60mm 60mm	4																		
Gearbox output torsional backlash :																			
Standard torsional backlash max. 20 arcmin	3																		
Reduced torsional backlash max. 15 arcmin	4																		
Channel Lubrication System C.L.S.	M																		
Oil Level sensor																			
V1	S																		
B5	H																		
Neutral position	N																		
Non-shifter	Z																		
Special application	A																		

GTP- 2G Standard
Ordering numbers for gearbox types : 2G600

Note :

1) RWDR = Radial shaft seal

* Motor-specific, on request

		2	G					—						—		
		1	2	3	4	5	6		7	8	9	10	11		12	13
Two-speed gearbox																
Motor balancing :																
Full-key	4															
Half-key*	5															
Input interface :																
Closed with hub, hub bearing, RWDR ¹⁾ *	3															
Closed with hub, RWDR ¹⁾ * without bearing	4															
Flange input (Ø=150k6)	9															
*Gearbox type:																
for motor frame size/ratio																
i ₁ =4.00 spigot Ø300 mm	40															
i ₁ =5.00 spigot Ø300 mm	41															
i ₁ =4.00 spigot Ø350 mm	42															
i ₁ =5.00 spigot Ø350 mm	43															
others	23															
Output bearing :																
Roller bearing	3															
Angular contact bearing	4															
Gearbox output :																
a1=65mm long output shaft with double key	N															
a1=65mm long output shaft without key	I															
a1=140mm	F															
a1=150mm	J															
a1=60mm shaft with double key	K															
a1=60mm smooth shaft without key	P															
a1=65mm shaft with double key	M															
a1=65mm smooth shaft without key	H															
Installation position :																
B5/V1/V3	E															
Motor shaft dimension "d"																
Flange input	0															
60x140mm	1															
65x140mm	2															
70x140mm	3															
75x140mm	4															
80x170mm	5															
55x110mm	6															
Gearbox output torsioanl backlash :																
Standard backlash max. 20 arcmin	1															
Neutral position	N															
Special application	A															

GTP- 2G Standard
Ordering number for 2G800/801/802

Note :

1) RWDR = Radial shaft seal

* Motor-specific, on request

		2	G					—						—		
		1	2	4	5	6	7		8	9	10	11	12		13	14
Two-speed gearbox																
Motor balancing :																
Full-key	4															
Half-key*	5															
Input interface																
Open without hub	0															
Open with hub	2															
Closed with hub and RWDR ¹⁾ *	4															
Open with hub and adapter plate*	5															
Input flange (Ø=180k6)	9															
*Gearbox type :																
motor frame size/ratio																
180/i ₁ =4.00 spigot Ø300mm	50															
200/i ₁ =4.00 spigot Ø350mm	60															
225/i ₁ =4.00 spigot Ø450mm	70															
180/i ₁ =5.20 spigot Ø300mm	51															
200/i ₁ =5.20 spigot Ø350mm	61															
225/i ₁ =5.20 spigot Ø450mm	71															
Brake :																
Without brake	1															
Gearbox output :																
Without output	N															
a1=65mm shaft with double key	H															
a1=65mm without key	L															
a1=180mm	J															
a1=180mm wide bearing base	R															
Installation position :																
V1/B5	C															
V3	B															
Motor shaft diameter "d"																
Flange input	0															
60mm	1															
65mm	2															
75mm	3															
80mm	4															
Backlash on gearbox output :																
Normal backlash max. 20 arcmin	1															
Neutral position	N															
Special application	A															

Check list

Gearbox interface	☐ Closed	☐ With adpater plate and shaft seal
		☐ With input flange
Ratio i	☐ 4.00 (2G120/121/250/300/600/800)	☐ 4.91 (2G120/121)
	☐ 5.00 (2G600)	☐ 5.20 (2G800)
	☐ 5.50 (2G250/300)	☐ 5.80 (2G1000)
Installation position	☐ B5 ☐ B5 turned	☐ V1 ☐ V3
Output bearings	☐ Cylindrical Roller bearing	☐ Angular-contact ball bearing
Lubrication system	☐ Splash type lubrication	☐ Recirculating lubrication with oil cooler
		☐ Recirculating lubrication with heat exchanger
Gearbox output	Gearbox with output flange	Gearbox with output shaft
	☐ 100mm (2G120/121)	☐ 38mm (2G120/121)
	☐ 118mm (2G250)	☐ 42mm (2G250)
	☐ 130mm (2G300)	☐ 55mm (2G300)
	☐ 130mm wide bearing base	☐ 60mm (2G600)
	☐ 140mm (2G600)	☐ 65mm (2G600/800/801/802/1000)
	☐ 150mm (2G600)	
	☐ 180mm (2G800/801/802/1000)	☐ inline
	☐ 180mm wide bearing base	☐ gear output
		☐ with key
		☐ without key
Oil Level sensor		☐ V1
		☐ B5
Shifting unit	☐ Normal shifter	☐ Non-shifter
	☐ with Neutral-position	
Torsional backlash at gearbox output	☐ ≤ 20 arcmin ☐ ≤ 15 arcmin	
Annual quantity :		
Ordering no. :		
Applictiaon :		

Subject to technical change without notice.
Please request instillation drawings, only the data contained therein is binding.

GTP- 2G Two Speed Spindle gearbox Warranty Clause

1. Warranty period : two-year warranty from the date of installation of customer's machine.
 2. German Tech Precision Co., Ltd. provides training for installation, installation instructions, and first installation check, ensuring the correctness of installation and operation.
 3. Customer must ensure that the following dimensions and data should comply with the installation instructions :
 - All the dimensions of the motor
 - Installation dimension of the hub
 - Stability of the shifting unit power supply
 - Correctness of the PLC program
 - Correctness of the lubrication oil circuit and stability of the flow rate, using correct oil type and replacing the oil regularly
- * For specifications and data, please refer to each chapter of installation instruction.
- * Application warranty is only valid after installation, power supply for shifting, PLC program, layout of lubrication, and flow rate have been confirmed by a GTP technical engineer.
- * After confirming installation, power supply for shifting, PLC program, layout of lubrication, and flow rate. Any modification needs to be reconfirmed by a GTP technical engineer.
4. There will be no warranty if customer cannot reach above regulations; accordingly, GTP will charge customer for the service cost.
 5. Damages due to natural and human error, installation, and operation error are not covered by warranty.

Note

Note