



ATLANTA

安装，操作，维护说明书

BWS 109-10 e

4100-001-12.93

Abteilung	TB, Schell
Änd. Index	C
Datum	2010-04-13

标准涡轮减速机 56系列

Seite	1	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

此说明替代了之前的说明，特别是BWS109-0 —BWS109-3，在有爆炸危险的环境下使用时，必须遵守符号标识说明。

1. 简述

ATLANTA 标准涡轮蜗杆减速机用于三相交流和直流伺服电机。外壳的各个面都经过加工，所以任何位置都可以安装。铝制外壳确保最佳散热，坚固的轴承和出色的刚度保证了高扭矩。减速机在出厂前已经过了试运行及密封检查。

2. 正确应用

减速机只能在大气条件下用于机器和机械设备的速度及扭矩转换。不得超过允许的输入速度和输出扭矩。请严格遵守亚特兰产品手册中的说明。

- 不能与内燃机一起种用，这会有过热和冲击负载的危险。
- 减速机通过蜗杆轴进行驱动，通过蜗轮（空心轴输出）的驱动请在咨询亚特兰之后进行选型。
- 减速机不能自制动
- 减速机不得在户外及水下使用
- 减速机运行时，表面温度不得超过80 C
- 如有疑问，请测量表面温度，如有必要，请关闭减速机
- 减速机可连续运行 (S1 符合 DIN EN 60034-1). 设计参数基于温度及最大侧载荷
- 在有爆炸危险 (S1符合DIN EN 60034-1) 的环境下运行时，可能需要降低输入转速（约1500分钟-1）。



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Abteilung	TB, Schell
Änd. Index	C
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标准涡轮减速机 56系列

Seite	2	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

运输和处理

减速机没有特别的孔或者螺纹用以运输, 但是壳体表面有一些固定的螺纹孔可拧紧螺栓以确保固定。

- 请遵守关于运输和搬运的所有安全规定
- 确保实物被小心缓慢的安置和摆放

中心距	重量
40	≈3 kg
50	≈5 kg
63	≈8 kg
80	≈14 kg
100	≈20 kg
125	≈30 kg

3. 装备安装

- 检查减速机是否有损坏或外部有脏污
- 有损坏或有污迹的减速机既不能安装又不能运行
- 减速机特别是密封区不得用锋利的物体或清洁液进行清洁

4. 安装说明

- ⓘ** 请具有资格或经过专业培训的人员进行安装

蜗轮蜗杆减速机:

有六个加工安装面, 具有足够的预钻孔、固定孔和螺纹孔。确保无张力安装非常重要。使用特定接触面的所有固定孔, 按规定的扭矩拧紧螺丝(见表)。如果补充力要完全被使用到的话, 减速机应该连接到最大的接触面, 即两个输出面的其中一个。为了更好的润滑, 请将蜗杆轴(输入驱动轴)安装在侧面下面。如果将轴安装在顶部的话, 驱动功率会降低10%, 避免电机向下悬挂安装, 因为在这个位置如果一旦漏油的话, 油会渗进电机。

中心距	螺栓大小	螺纹深度	螺栓等级	锁紧扭矩
40 mm	M 6	15 mm	8.8	7 Nm
50 mm	M 8	18 mm	8.8	14 Nm
63 mm	M 10	22 mm	8.8	30 Nm
80 mm	M 12	27 mm	8.8	47 Nm
100 mm	M 12	30 mm	8.8	47 Nm
125 mm	M 16	40 mm	8.8	102 Nm

*)必须使用校验过得扭力扳手锁紧, 如果锁紧扭力过低, 需要的的扭力不能满足。如果锁紧扭矩过高, 将超过螺栓的紧固力, 而失效。

- ⓘ** 使用有效长度至少为1.6 x螺纹直径的螺丝。



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Abteilung	TB, Schell
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Datum	2010-04-13

标准涡轮减速机 56系列

Seite	3	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

☒ 任何额外的附件或者是对减速机进行重改都是不允许的，除非得到亚特兰的书面许可。

☒ 在 $< -10\text{ }^{\circ}\text{C}$ 或 $> 40\text{ }^{\circ}\text{C}$ 的环境温度下请不要使用减速机

☒ 最适合测量减速机表面温度的点是输入端蜗杆轴承区域

☒ 请将蜗杆轴垂直摆放（输入或输出端垂直向下）并带有一个油位检测器，以防突然漏油的时候停止减速机运行。

安装法兰:

- 在安装法兰之前请清洁所有的接触面
- 将输入法兰插入齿轮的定心片并稍微拧紧螺丝
- 然后交替交叉着将螺丝拧到合适的扭矩

锁紧扭矩见下表:

螺栓尺寸	螺纹深度	螺栓等级	锁紧扭矩 ^{*)}
M 6	18 mm	8.8	9 Nm
M 8	17 mm	8.8	23 Nm
M 10	20 mm	8.8	40 Nm
M 12	26 mm	8.8	45 Nm
M 16	30 mm	8.8	117 Nm

*)必须使用校验过得扭力扳手锁紧，如果锁紧扭力过低，需要的的扭力不能满足。如果锁紧扭矩过高，将超过螺栓的紧固力，而失效。

① 使用有效长度至少为1.6 x螺纹直径的螺丝。

☒ 当在有爆炸危险使用时，不正确的安装可能导致机器温度过高，因此请根据运行说明检查电机的连接。

驱动离合器的安装 (带实心轴):

The standard worm-gear units with solid shaft end are supplied with feather, but without clutch. ● Before mounting the driving clutch clean the shaft stub and the clutch and coat them with a

thin oil film.

- Attach the clutch as described in the clutch operating instructions.

☒ 在具有爆炸危险的地区，只能使用符合ATEX指南的离合器。

☒ 不合适的离合器或不正确的安装可能导致点火危险增加。在工作条件下运行10小时后检查设备的运行状态。

① 轴杆中的端面螺纹可用于轴向锁定离合器。

中心距	轴杆端面螺纹	螺纹深度	螺栓等级	最大锁紧扭矩
40 mm	M 5	13 mm	8.8	5,5 Nm
50 mm	M 5	10 mm	8.8	5,5 Nm
63 mm	M 5	14 mm	8.8	5,5 Nm
80 mm	M 8	20 mm	8.8	23 Nm
100 mm	M 8	20 mm	8.8	23 Nm
125 mm	M 12	26 mm	8.8	80 Nm



ATLANTA

安装, 操作, 维护说明书

BWS 109-10 e

4100-001-12.93

Abteilung	TB, Schell
Änd. Index	C
Datum	2010-04-13

标准涡轮减速机 56系列

Seite	4	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

Mounting the motor (version with hollow input shaft):

- Clean all contact surfaces before attaching the motor.
- If necessary, rotate motor on the motor axle until the key connection fits.
- ☒ The motor must easily slide on.
- ☒ There must not be any gap between motor and gearbox flange.
- Screw motor and gearbox together using the specified torque (see table)..
- ① The motor can be optimally centered with the worm-shaft standing vertically upright
- ① Use screws with an effective length of at least 1.6 x the thread diameter.

Screw size	Depth of thread	Strength class of screws	Tightening torque ^{*)}
M 5	15 mm	8.8	2,8 Nm
M 6	15 mm	8.8	7 Nm
M 8	15 mm	8.8	14 Nm
M 10	22 mm	8.8	30 Nm
M 12	24 mm	8.8	47 Nm

^{*)} Use only calibrated torque wrenches! If the tightening torque of the screws is too low, the required torque will not be transmitted. If the tightening torque is too high, the screws will be overstrained and become unusable. Secure screws against loosening (e.g. Loctite 243).

Mounting the motor (version with shaft stub):

- Clean all contact surfaces before attaching the motor.
- If necessary, mount the parts of the clutch to be used onto the motor shaft (observe the clutch operating instructions).
- If necessary, rotate motor on the motor axle until the clutch can be fitted.
- ☒ The motor must easily slide on..
- ☒ There must not be any gap between motor and gearbox flange.
- Screw motor and gearbox together using the specified torque (see table).
- ① The motor can be optimally centered with the worm-shaft standing vertically upright.
- ① Use screws with an effective length of at least 1.6 x the thread diameter.

Screw size	Depth of thread	Strength class of screws	Tightening torque ^{*)}
M 5	15 mm	8.8	2,8 Nm
M 6	15 mm	8.8	7 Nm
M 8	15 mm	8.8	14 Nm
M 10	22 mm	8.8	30 Nm
M 12	24 mm	8.8	47 Nm

^{*)} Use only calibrated torque wrenches! If the tightening torque of the screws is too low, the required torque will not be transmitted. If the tightening torque is too high, the screws will be overstrained and become unusable. Secure screws against loosening (e.g. Loctite 243).



ATLANTA

安装, 操作, 维护说明书

BWS 109-10 e

4100-001-12.93

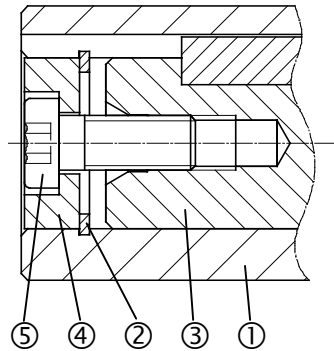
Abteilung	TB, Schell
Änd. Index	C
Datum	2010-04-13

标准涡轮减速机 56系列

Seite	5	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

Mounting the output shaft (one-sided variations):

If the output pinion shaft is not yet mounted at delivery, we recommend to proceed as follows:



- Clean the seat of the hollow shaft ① and rub with MoS₂ powder or grease (reduces fretting corrosion).
- Insert the retaining ring ② in the recess of the hollow shaft ①.
- Slide the output shaft ③ in up to the stop.
- Slide the retaining disk ④ from the opposite side into the hollow shaft ① right up to the stop.
- Connect the retaining disk ④ and the output shaft ③ using the screw ⑤.
- Secure the screw ⑤ with a suitable adhesive (e.g. Loctite 243).

⚠ When used in areas with explosion hazard, improper installation may lead to inadmissibly high temperatures. Check the tightening torque and the axial locking after 10 h under operating conditions.

Gear centre distance	Screw size	Strength class of screws	Tightening torque ^{*)}
40 mm	M 5	8.8	5,5 Nm
50 mm	M 8	8.8	23 Nm
63 mm	M 8	8.8	23 Nm
80 mm	M 12	8.8	80 Nm
100 mm	M 12	8.8	80 Nm
125 mm	M 12	8.8	80 Nm

*) Use only calibrated torque wrenches! If the tightening torque of the screws is too low, the required torque will not be transmitted. If the tightening torque is too high, the screws will be overstrained and become unusable. Secure the screws against loosening (e.g. Loctite 243).

Mounting the output shaft (both-sided variations):

If the output pinion shaft is not yet mounted at delivery, we recommend to proceed as follows:

- If necessary, remove both outer keys and clean driving shaft.
- Clean the seat inside the hollow shaft and rub with MoS₂ powder or grease (reduces fretting corrosion).
- Mount one retaining ring and one supporting plate on the side of the middle key.
- Push the output shaft in right up to the stop. The middle key should look toward the side, where the highest torque is taken off.
- Mount the supporting plate and the retaining ring on the other side of the output shaft.
- Insert the outer keys into both shaft ends.

Mounting the output flange:

The output flanges are already mounted at the factory. Gear units which are already supplied can be converted in our factory. If desired, please contact us.

The various mounting possibilities are shown in the catalogue.



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4100-001-12.93

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Änd. Index	C
Datum	2010-04-13

标准涡轮减速机 56系列

Seite	6	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

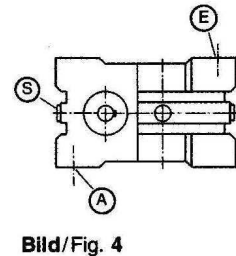
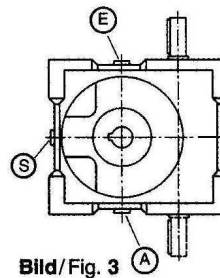
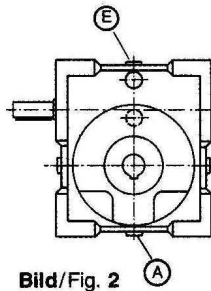
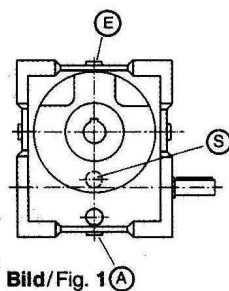
Oil level and installation of the vent screw:

Because of the many predrilled holes and threaded fixing bores the Atlanta standard worm-gear units can be mounted in any position. Whatever position you choose, there are sufficient easily accessible screws available for filling in oil/venting **E**, for draining oil **A**, and for checking the oil level **S**.

- One vent plug is supplied separately and must be exchanged for the corresponding screw plug, before taking the unit into operation
- ⊗ For use in areas with explosion hazards the vent plug must not be used. Check the unit for loss of oil. It may be necessary to measure the surface temperature and warn or switch off, if the permissible temperature is exceeded.
- The gear units are supplied filled with a synthetic lubricant. The quantity of this first filling meets the requirements of the mounting position shown in fig. 4. The necessary oil quantities for the various mounting positions possible are shown in the table.
- We recommend to use one of the following gearbox lubricants:

SHELL Tivela S 220	Klübersynth GH6-220	BP Enersyn SG-XP 220
ARAL Degol GS 220	TRIBOL 800/220	OPTIMOL Optimax A 220
FUCHS Renolin PG 220	DEA Polydea PGL P220	

Mounting position:



Oil quantity:

Gear centre distance	Mounting position acc. to pict. 1	Mounting position acc. to pict. 2	Mounting position acc. to pict. 3	Mounting position acc. to pict. 4
40 mm	0.10 litres	0.14 litres	0.16 litres	0.17 litres
50 mm	0.15 litres	0.18 litres	0.20 litres	0.20 litres
63 mm	0.30 litres	0.40 litres	0.40 litres	0.40 litres
80 mm	0.50 litres	0.70 litres	0.80 litres	0.80 litres
100 mm	1.00 litres	1.40 litres	1.70 litres	1.70 litres
125 mm	1.70 litres	2.60 litres	3.10 litres	3.20 litres

- ⊗ Synthetic oils must not be mixed with mineral oils.
- ⊗ Mineral oils reduce the power transmission performance and must not be used without the approval of ATLANTA.
- ⊗ The non-observance of these instructions may cause breakdowns and damage to the gear unit!



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Abteilung	TB, Schell
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Datum	2010-04-13

标准涡轮减速机 56系列

Seite	7	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

5. Operation

 When used in areas with explosion hazard, the operator must assure that the temperature on the housing surface does not exceed 80°C. It may be necessary to monitor the surface temperature of the housing.



Attention!

During operation the gearbox surface may reach temperatures of more than 65 °C and cause burns.

The person building in the gear unit must make sure that persons cannot be endangered by hot surfaces.



Warning!

Rotating parts may catch pieces of clothing, hair and parts of the body and injure persons.

The person building in the gear unit must assure that persons cannot be endangered by rotating parts.

6. Maintenance

The following points must be assured before starting to perform any maintenance work on the standard worm-gear units:

- The machine/plant into which the gear unit is installed must be at a standstill.
- The machine/plant must be secured against accidental starting.
- The machine/plant must be cooled down so that there is no risk of burns.

Changing the gear oil:

ATLANTA servo-worm-gear units are filled with synthetic polyglycol oil .


Under the following conditions this is a lifetime lubrication:


- The gear unit is laid out strictly in accordance with the instructions given in the ATLANTA catalogue.
- The gear unit is operated exclusively within the permissible nominal values and limit values.
- The operator checks the gear unit regularly (every two weeks) for loss of oil..
- The surface temperature reaches max. 80°C.

① If the unit is predominantly operated with low input speeds (peripheral speed of the worm: $v < 0.5 \text{ m/s}$), we recommend to change the lubricant every two years.

Gear centre distance	Input speed for $v < 0,5 \text{ m/s}$	Mounting position as in picture 1	Mounting position as in picture 2	Mounting position as in picture 3	Mounting position as in picture 4
40 mm	500 min^{-1}	0.10 litres	0.14 litres	0.16 litres	0.17 litres
50 mm	400 min^{-1}	0.15 litres	0.18 litres	0.20 litres	0.20 litres
63 mm	320 min^{-1}	0.30 litres	0.40 litres	0.40 litres	0.40 litres
80 mm	280 min^{-1}	0.50 litres	0.70 litres	0.80 litres	0.80 litres
100 mm	220 min^{-1}	1.00 litres	1.40 litres	1.70 litres	1.70 litres
125 mm	180 min^{-1}	1.70 litres	2.60 litres	3.10 litres	3.20 litres

① Order code for 1 litre Klübersynth GH 6-220: 65 90 010

 Synthetic oils must not be mixed with mineral oils.

 Mineral oils reduce the power transmission capacity and must not be used without the approval of ATLANTA.



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BWS 109-10 e

4100-001-12.93

Abteilung	TB, Schell
Änd. Index	C
Datum	2010-04-13

标准涡轮减速机 56系列

Seite	8	8
Name	Schillinger	29.04.03
freigegeben	Schell	22.08.03

☒ The non-observance of these instructions may cause breakdowns and damage to the gear unit!

Cleaning:

- ☒ Dust layers on the gearbox of more than 5 mm thickness are not permissible because they increase the surface temperature and may thus cause the ignition of the dust. Keep the surface clean.
- ☒ Cleaning with high-pressure cleaner is not permitted because it destroys the sealing rings so that water may penetrate into the gear unit causing premature failure of the gear unit.

7. Identification

The bevel gear unit is identified by a nameplate showing the type of gear, the gear ratio, the max. speed, the mounting date, and the serial number of the gear unit.

A separate oil-type nameplate indicates the type of oil.

- ☒ If the gearbox is to be used in areas with explosion hazard it must be identified accordingly by an additional plate. Only units with the respective marking may be used in such areas.

8. Storage

If the gear unit is not installed immediately after its delivery, the following measures are to be taken:

- Store the gear unit with horizontal hollow output shaft and horizontal input drive shaft (worm shaft) on top in such a way that - except for the supporting surface - it cannot come into contact with any other objects.
- Protect the gear unit against environmental influences (ozone, UV light, electric welding, dust, dirt, moisture, temperature fluctuations, shocks etc.).
- Connecting parts, e.g. coupling or output shaft, are to be stored separately.
- Protect the steel parts against corrosion
- ① Occasionally turning the input shaft of the gear unit will facilitate the start-up.
- The max. storage time under such conditions is 2 years.

ATLANTA does not assume any liability for damage to the drive or any resulting consequential damage if these instructions are not observed.