



建造您的电动机

无论您有何计划 - 或是提出要求很高的任务：我们都能针对您的应用研发和生产最佳驱动装置。与您密切磋商，精确依照技术要求生产样机或批量产品。始终保持最高产品质量。为何要退而求其次？

我们所能提供的是：

- » 在选择驱动装置时，确定具体要求，并提供专业意见
- » 与您的技术负责人密切合作，配置并设计特种电动机
- » 生产和全面测试包括文档
- » 我们经验丰富的服务团队提供现场服务或在工厂内的服务（包括24小时服务热线）

OUR PRODUCT RANGE:

- » Three-phase asynchronous motors with squirrel-cage and slip ring rotor
- » Three-phase synchronous motors
- » Eddy-current brakes
- » Power 1 to 1.000 kW
- » Speed up to 20.000 rpm
- » Motors with 90 bis 500 mm axis height

我们的电动机型谱：

- » 鼠笼式和绕线式三相异步电动机
- » 三相同步电动机
- » 涡流制动器
- » 功率从 1kW~1000 kW
- » 转速高达 20000 rpm
- » 轴高度尺寸 90mm~500mm

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AKH
Antriebstechnik KATT Hessen

PRECISE, INDIVIDUAL, DURABLE

Test bed drives custom made in Germany

精密、个性化、耐用

德国制造试验台电动机



www.akh-antriebstechnik.de

Precision moves us:

AKH develops and manufactures innovative and highly efficient special motors for a variety of applications. We can rely on 90 years of experience, 180 highly qualified employees – and the assertion to offer our customers the best possible drive solutions for their special requirements. This is only possible through our extraordinary degree of vertical integration, an effective development team as well as an uncompromising quality standards.

Facts that renowned customers all over the world appreciate. The result: Motors that live up the demands on power, reliability, efficiency, and cost effectiveness. We would be happy to be the driving part of your success.

务求精密，促使我们：

AKH 为各种不同应用领域研发和制造创新型高效特种电动机。凭借将近 90 年的经验和 180 名专业员工，我们始终针对客户特殊要求提供最佳驱动解决方案。程度极高的加工深度、强大的研发团队以及毫不妥协的质量标准襄助我们达此目标。

世界范围内知名客户最看重的因素。结果：对功率、可靠性、效率和经济性提出最高要求的电动机。我们期待也能够成为助您成功的驱动力。

Our range of activities

我们的功率谱

Development and Design

研发与设计

Production | 生产

Testing | 测试

Service | 服务

Retrofit | 改造

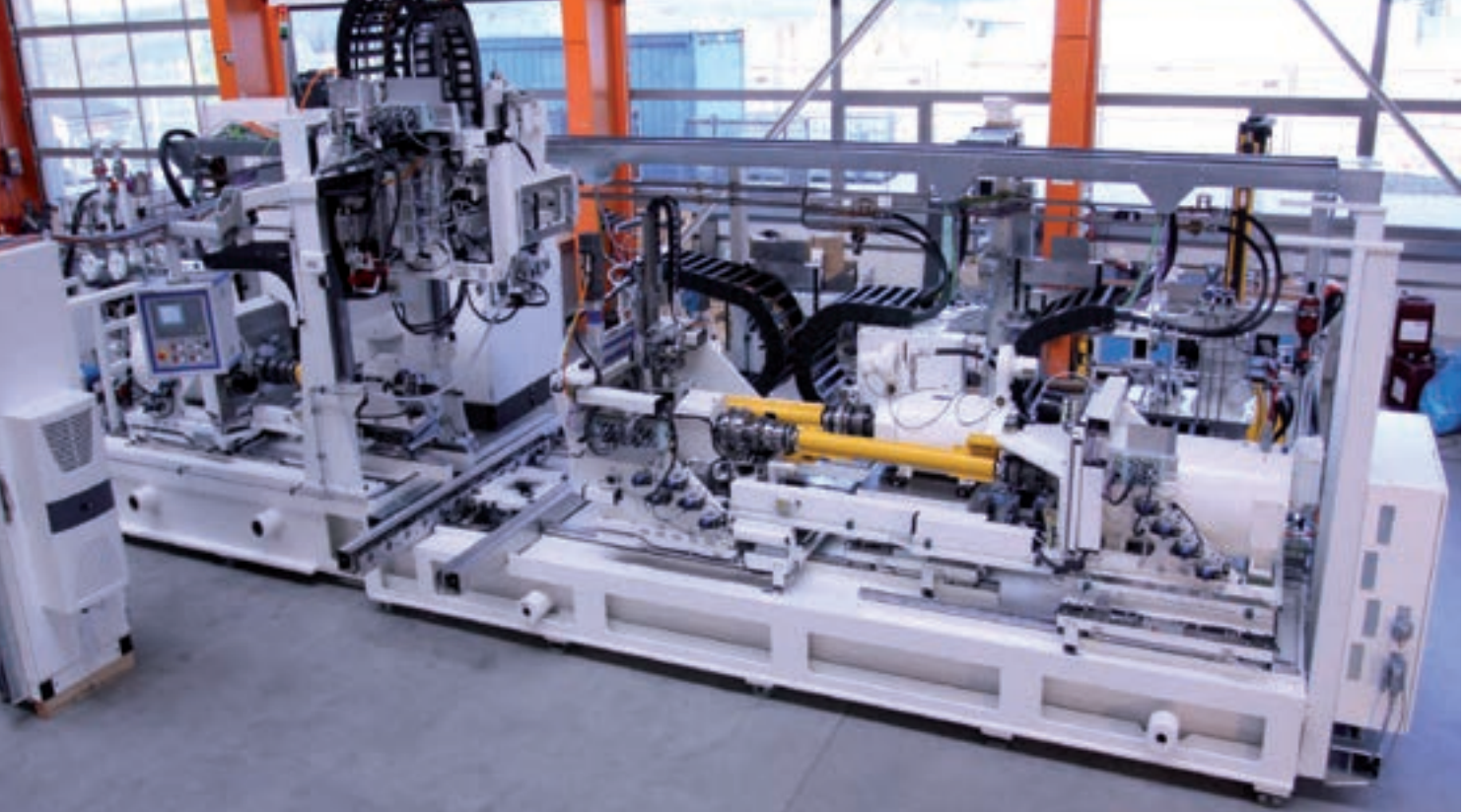
We build your motor

Whatever your plans are – no matter how sophisticated your requirements are: We will develop and produce the best drive for your application. In close cooperation with you and, of course, precisely to your specifications. Whether you need a prototype or series production. And always at the highest possible quality. Why should you be satisfied with less?

What we can do for you:

- » Determining the exact requirements and professional advice for selecting your drive
- » Dimensioning and design of special motors in close corporation with your responsible engineers
- » Production and comprehensive testing, including documentation
- » On-site service or at our factory provided by an highly experienced service team (including 24-hour Service Hotline)





Power connects us with our motors

Test bench drives

For more than 20 years we develop and manufacture dynamometers that are utilized in production as well as development test benches. The technology of our electrical motors has evolved permanently with the testing tasks in the automotive industry. To-day we are able to deliver dynamometers for the most sophisticated testing applications in the power range up to 1 MW and speed up to 20.000 rpm.

Diverse cooling systems, patented and permanently further developed, ensure us the leading role as provider of low inertia asynchronous machines.

Our customers develop and supply test bed technology, focussing on the following:

- » End of Line test of gearboxes and engines
- » development test benches for
 - hybrid applications and electric motors
 - combustion engines
 - gearboxes
 - complete drive trains
 - vehicles
 - other vehicle components

AKH-three-phase current dynamometers are specially developed for using in test benches. Features:

- » Motor performance exactly acc. customer requirements
- » Very low maintenance – ensures high availability of test beds
- » High overload capacity
- » Wide range of constant power
- » Low vibration and low noise level
- » Available with air cooling, water cooling and cooling by heat exchanger
- » Optimized for a given inverter current
- » variable voltage (up to 700 V)

效率把我们与我们的电动机联系起来

试验台设备
近20年来，我们研发和生产的试验台设备广泛应用于全球客户的研发和生产试验台。电动机技术工艺伴随汽车行业任务不断向前发展。
今天，使用我们的三相测功机可以完成功率要求最严苛的、功率范围高达1MW、转速高达20000rpm的试验台任务。

拥有若干专利权和持续不断研发的冷却系统确保了我們作为低惯性异步机供应商的领先地位。

我们给客户研发和提供的试验台技术主要有以下几项：

- » 传动机构和电动机零部件产线测试
- » 针对电动机和混合应用的
 - 研发试验台等
 - 内燃机
 - 传动机构
 - 完整的驱动系
 - 完整的车辆
 - 车辆技术其他组件

AKH三相测功机专门针对试验台应用而研发。特征：

- » 电动机特性精确符合客户规定
- » 低维护 – 确保试验台具有较高可用性
- » 过载强度高
- » 恒定功率范围广
- » 振动少噪声低
- » 可提供空气冷却、水冷却或通过热交换器的冷却
- » 如有必要，根据所指定的变频器电流优化配置
- » 可变电压设计（最高700V）

Nearly Unrivalled

Due to the different cooling systems, we offer the most flexibility for the different conditions in test beds. In-house developed calculation programs, permanently further developed, enables us to exactly calculate the losses even at motors with high speed. The technical values are verified by S1 load measurement in our test lab.

Measurements with using the customer inverter are possible. The bearings of the drives are especially dimensioned for the requirements in test beds, that's saying low maintenance dynamometers with high durability even of high speed motors and high dynamic operated motors. Due to the high degree of vertical integration and the strong development team the motor performance and the design can exactly be realized according customer wishes.

无与伦比

凭借各种冷却系统，针对试验台的使用条件提供最大的灵活性。
自身持续不断研发的计算机软件能够精确确定损耗，即使是转速非常高的机器。
通过试验台的S1负载测试执行数值检查。可以在用户提供的逆变器上进行测量。
机器的存放方式专为试验台要求而配置。也就是说，低维护的测功机具有较长使用寿命，即使是高速机和高动态驱动的电动机和发电机。
此款AKH测功机的电气布局和设计均可精确根据客户要求调整。
凭借程度极高的加工深度和强大的研发团队可达此目标。

Type 电动机型号	UHMF	UHTD /UHMD	UHTZ	UHTW /UHMW	UHTY /UHMY	UTTW /USTW
Power [kW] 额定功率 [kW]	15 – 600	5 – 1.000	40 – 1.000	3 – 1.000	100 – 1.000	20 – 330
Torque [Nm] 额定扭矩 [Nm]	40 – 5.000	20 – 10.000	80 – 10.000	10 – 10.000	200 – 10.000	50 – 1.000
Maximum speed [rpm] 最高转速 [rpm]	< 12.000	< 15.000	< 22.000	< 15.000	< 18.000	< 18.000
Degree of protection 防护级	IP 54	IP 23 (IP 54)	IP 23 (IP 54)	IP 54	IP 23 (IP 54)	IP 54
Cooling	Forced ventilation	Open-circuit cooling (heat exchanger)	Open-circuit cooling (heat exchanger)	Water jacket cooling	Combined cooling (heat exchanger)	Water cooling
冷却方式	强制冷却	空冷自通风 (热交换器)	空冷自通风 (热交换器)	水套冷却	组合冷却 (热交换器)	水冷
Axis height [mm] 轴高度 [mm]	160 – 400	132 – 500	200 – 500	100 – 500	200 – 500	112 – 180
Details	Frameless design, high power with compact design	High torque and high speed, low inertia, smooth running	Highspeed-motors, high power and high torque at very compact size, very low inertia, high overload capacity	Water cooling, low noise, smooth running, low waste heat in the test lab	Water jacket and air cooling, high torque high maximum speed, compact design	New water cooling, high torque at very small size, extremely low inertia
详情	无框电机（全层压），结构紧凑，性能高	高扭矩，最大转速高，惯性力矩低，运转平稳性高	高转速电机，高功率和高扭矩结构体积非常小，惯性力矩极低，过载强度高	水冷，低噪声，运转平稳性高	水冷，低噪声，运转平稳性高	新的水冷，高扭矩最大转速高，结构体积极小、惯性转矩非常低

Wheel drives and output drives for gearbox test beds
传动机构试验台的轮式机械和输出轴

Special features

- » Very low inertia for high dynamic simulation
- » Rotor inertia according customer requirements
- » Low vibration level

特点

- » 用于高动态模拟的、惯性力矩极低的机器
- » 惯性力矩符合客户规定
- » 运行平稳性高

Extract of the motor range*: 选自电动机型谱*：

Type	Power	Torque	Rated Speed	Max. Speed	Inertia	Cooling
型号	功率	额定扭矩	额定转速	最大转速	惯性力矩	冷却
UHTW 322.2Z-4	250	1.989	1.200	3.000	3,9	🔥
UHTZ 318.3Z-4	300	2.500	1.146	3.000	1,8	🌀
UHTD 286.4-4	403	2.500	1.540	3.600	???	🌀
UHTD 3320.5-4	235	3.200	700	3.000	4,8	🌀
UHTD 355.2Y-4	367	3500	1.000	3.000	5,6	🌀
UHTZ 318.5X-4	277	3.500	756	2.500	2,3	🌀
UHTW 355.2-4	257	3.521	700	3.000	6,9	🔥
UHTW 325.4-4	220	4.000	525	3.000	4,3	🔥
UHTD 323.4-4	380	4.000	907	3.000	6,4	🌀
UHTD 355.4Y-4	360	4910	700	3.000	7,6	🌀
UHTD 355.4X-4	360	5.000	688	3.600	8,0	🌀
UHMY 401.4-4	600	7.000	680	3.500	20,5	🔥🌀

* other dimensioning on request. * 根据要求提供其它配置

Dynamometers for E-Mobility test beds
用于电动车试验台的负载机

Special features

- » High speed motors
- » High overload capacity

- » Low vibration level over the whole speed range
- » Available with very compact design, e.g. for enclosures

特点

- » 最大转速非常高的机器
- » 过载强度高
- » 在整个转速范围内的振动极少
- » 结构也可以非常紧凑，例如：用于机箱

Extract of the motor range*: 选自电动机型谱*：

Type	Power	Torque	Rated Speed	Max. Speed	Inertia	Cooling
型号	功率	额定扭矩	额定转速	最大转速	惯性力矩	冷却
UHTZ 205.2X-2	160	153	10.000	16.800	0,13	🌀
UHTZ 202.2Z-2	132	250	5.042	15.000	0,22	🌀
UHTZ 226.2-2	180	430	4.000	16.000	0,38	🌀
UHTW 255.2-2	173	430	3840	15.000	0,38	🔥
UTTY 182.3-4	190	477	3.800	12.000	0,41	🔥🌀
UHTZ 229.2-2	200	500	3.820	15.000	0,42	🌀
UHTZ-K 229.2-2	200	500	3.820	15.000	0,42	🚚
UHTZ 282.3-2	250	703	3.394	12.000	0,71	🚚
UHMY 251.3-2	270	780	3.320	10.000	1,30	🔥🌀

* other dimensioning on request. * 根据要求提供其它配置

Dynamometers for engine test beds and input drives for gearbox test beds
内燃机试验台的负载机、传动机构试验台的驱动装置

Special features

- » High overload capacity
- » Wide constant power range, if needed up to maximum speed
- » Very low inertia, if required J exactly acc. customer specification
- » Low vibration level over the whole speed range

特点

- » 过载强度高
- » 恒定功率范围广，如有需要达到最大转速
- » 惯性力矩极低，如有需要精确符合规定
- » 在整个转速范围内的振动极少

Extract of the motor range*: 选自电动机型谱*：

Type	Power	Torque	Rated Speed	Max. Speed	Inertia	Cooling
型号	功率	额定扭矩	额定转速	最大转速	惯性力矩	冷却
UHMF 226.2-2	80	300	2.547	7.500	0,85	🌀
UTTY 161.2-4	135	215	6.000	8.000	0,12	🔥🌀
UHTD 226.3-2	150	358	4.000	8.000	0,37	🌀
UTTY 181.3-4	190	726	2.500	8.000	0,27	🔥🌀
UHTW 280.2Y-2	300	716	4.000	8.000	1,44	🔥
UHTD 281.2-2	500	1.000	4.775	10.000	1,34	🌀
UHMW 315.2Z-2	262	1.152	2.170	7.000	3,0	🔥
UHTY-K 317.2-2	600	1.200	4.775	9.000	1,7	🔥🚚
UHTZ 316.2-2	500	1.200	3.980	10.000	1,55	🌀
UHTW 324.3Z-4	210	2.005	1.000	9.000	2,9	🔥
UHTZ 325.3-4	460	3.000	1.672	9.000	2,5	🌀
UHTD 406.2-4	700	3.900	1.714	3.700	8,9	🌀
UHTY 356.4-4	800	4.500	1.698	4.000	9,75	🔥🌀
UHTW 502.3-4	800	6.000	1.273	3.500	26,0	🔥

* other dimensioning on request. * 根据要求提供其它配置

Legend:

图例：

🌀 Air cooling
空冷

🔥 Water cooling
水冷

🚚 Heat exchanger
热交换器

🌀🔥 Water-Air-cooling
组合

REFERENCES | 参考

Adam Opel AG, Atlas Copco GmbH, Audi AG, Automobil-Prüftechnik Landau GmbH, Blum-Novotest GmbH, BMW AG, BorgWarner Inc., Bosch Rexroth AG, BYD Company Limited, CLAAS KGaA mbH, Daimler AG, Deutsche Bahn AG, Deutz AG, Dr. Ing. h. c. F. Porsche AG, Fendt, Ferrari S.p.A., Ford, GE Energy, GKN plc, General Motors Co., GETRAG, HYUNDAI, H. Kleinknecht & Co. GmbH, Liebherr,

LuK GmbH & Co. KG, Mack Trucks, MAN SE, Renault, Robert Bosch GmbH, Renk AG, Schaeffler AG, Scania AB, Shandong Gold Phoenix Group Co. Ltd., Shanghai Volkswagen Automotive Co., Shell, Siemens AG, teamtechnik GmbH, Skoda, Technogerma Systems GmbH, ThyssenKrupp System Engineering, Voith GmbH, Volkswagen AG, Volvo Trucks, ZF Friedrichshafen AG