



中文 | ENGLISH

绝对值编码器

A...(HJ) 40, AM...(H) 41, AL... 40, AS...H 60

用于极端环境条件下位置测量

Absolute encoders

A...(HJ) 40, AM...(H) 41, AL... 40, AS...H 60

For position measurement under extreme ambient conditions





目录

Contents

任务和解决方案	3
产品的优点	4
技术参数 A...(HJ) 40 和 AM...(H) 41	6
技术参数 AL... 40 和 AS...H 60	7
连接技术	8
应用案例	10
尺寸图	12
选型表	17

Task and Solution	3
Product benefits	4
Technical data A...(HJ) 40 and AM...(H) 41	6
Technical data AL... 40 and AS...H 60	7
Connection technology	8
Application examples	10
Dimension drawings	12
Type code	17

精确、优势、关注客户

我们专注于技术—我们了解我们的客户。我们坚定的站在客户一边为其提供特殊的设想、定制的解决方案。为了支持我们的客户，我们提供了强大的编码器系统、强大的传动技术和全球化的服务。我们将与我们的客户一起克服在重工业领域或其它极其恶劣条件领域的巨大的挑战，继而不断的增进客户的业务。你有什么挑战？

Precision. Strength. Customer focused.

We are fascinated by technology – and we understand our customers. We stand firmly at your side with exceptional ideas and tailor-made solutions; to support our customers we offer robust encoder systems, powerful drive technology and a worldwide service. That is how we overcome together with our customers the huge challenges in heavy industry and other fields subject to harsh conditions to sustainably improve their business. What challenges do you have?

我们的应用领域

- 金属及轧制技术
- 港口和起重机技术
- 矿山工业
- 石油和天然气工业
- 运输
- 海洋工程
- 发电行业
- 其它应用领域

Our fields of applications:

- Metal and rolling mill technology
- Harbour and crane technology
- Mining industry
- Oil and gas industry
- Transport
- Marine engineering
- Power generation
- ... and many other applications

任务和解决方案

Task and Solution

任务

重工业对所用部件的可靠性和寿命提出了更高的要求。经验表明，标准的编码器不能满足所有有关安全性、精确性和可靠性的要求。例如这些装置通常表现出太低的抗冲击和抗振荡能力，有限的信号精度 和降低寿命。与工厂停工相关的成本远超过采购成本的数倍。

Task

Heavy industry places tough demands on the reliability and lifetime of the utilized components. Experience shows that standard dimensioned encoders do not meet all of the demands regarding safety, accuracy and reliability. For instance these devices often exhibit too low resistance to shock and vibration, limited signal accuracy and a reduced lifetime. The entailing costs associated with plant downtimes exceed acquisition costs many times over.



型号 ASPAH 60 KK, 空心轴直径 \varnothing 50 mm, 带有并行接口和增量输出
Type ASPAH 60 KK, hollow shaft bore \varnothing 50 mm with parallel interface and incremental output



型号 AMP 40 K, 结构形式 B35, 带有 PROFIBUS 接口
Type AMP 40 K in construction type B35, with PROFIBUS interface

解决方案

来自Johannes Hübner Giessen 的绝对值编码器的解决方案是要求最高精度和可靠性的重载应用的理想选择。安装用于位置测量和定位任务，它们提供轴的角位置的高精度信息。多种系列和设计变化，可适用于不同的应用：

- A...(HJ) 40: 用于重载应用，可以选择安装更多的附加装置和多个接口
- AM...(H) 41: 用于安全应用 (SIL 3/PL e)，具有PROFIsafe协议
- AL... 40: 适用于承受最极端冲击和温度负荷的应用场合
- AS...H 60: 适用于大型轴，也可作为进一步安装附件和多个接口稳定的基础。

Solution

Absolute encoder solutions from Johannes Hübner Giessen are ideal for heavy-duty applications that demand the highest levels of precision and reliability. Installed for position measuring as well as positioning tasks they deliver high accurate information about the angular position of the shaft. A variety of series and design variations are available to suit different applications:

- A...(HJ) 40: For heavy-duty applications with the option of fitting further add-on units and several interfaces
- AM...(H) 41: For safety applications (SIL 3/PL e) with PROFIsafe protocol
- AL... 40: For applications subject to the most extreme shock and temperature loads
- AS...H 60: For large shafts as well as a stable basis for further attachments and several interfaces

产品的优点 Product benefits

安全性 / safe	A... (HJ) 40	AM... (H) 41	AL... 40	AS... H 60
具有滑键 / 键槽的正连接 Positive connection with feather key / feather keyway	x	x	x	x
先进的电子技术, 坚固的厚壁外壳 State-of-the-art electronics in a robust, thick-walled housing	x	x	x	x
最高转速为 6000 rpm (实心轴) 和 4000 rpm (空心轴) High speeds up to 6000 rpm (solid shaft) and 4000 rpm (hollow shaft)	x	x		x
所有的螺纹连接都是抗振的 All screwed connections are vibration resistant	x	x	x	x
封装的电子部件即使在端子箱打开时也能得到保护 Encapsulated electronics protected even when terminal box is open	x	x	x	x
UL / CSA-认证 / UL / CSA certification	x	x	x	x
SIL 3 / PL e 认证 / Certified SIL 3 / PL e		x		

灵活性 / flexible	A... (HJ) 40	AM... (H) 41	AL... 40	AS... H 60
单圈分辨率高达 13 Bit Singleturn resolution up to 13 bit	x	x	x	x
单圈分辨率高达 16 Bit Singleturn resolution up to 16 bit	x		x	x
多圈分辨率高达 12 Bit Multiturn resolution up to 12 bit	x	x		
多圈分辨率高达 15 Bit Multiturn resolution up to 15 bit		x		
SSI / SSI	x		x	x
并行格雷码 / Parallel Gray	x			x
EtherCAT / EtherCAT	x			x
DeviceNet / DeviceNet	x			
PROFIBUS-DP / PROFIBUS-DP	x			
PROFIBUS-DP 与 PROFIsafe PROFIBUS-DP with PROFIsafe		x		
PROFINET IO 与 PROFIsafe PROFINET IO with PROFIsafe		x		



产品的优点 Product benefits



可靠性 / reliable	A... (HJ) 40	AM... (H) 41	AL... 40	AS... H 60
长寿命, 高可靠性 Long lifetime, high availability	x	x	x	x
抗冲击、抗振动能力强 High shock and vibration resistance	x	x	x	x
保护等级可达 IP66 和 IP66/IP67 High degree of protection up to IP66 and IP66/IP67	x	x	x	
较宽的温度范围 -25 °C 至 +85 °C Wide temperature range -25 °C to +85 °C	x		x	x
高动载荷的大型轴承 Large bearings with high dynamic load rating	x	x	x	x
混合轴承防止轴电流 (空心轴) / Hybrid bearings protect against shaft currents (hollow shaft)	x			

可定制 / tailor-made	A... (HJ) 40	AM... (H) 41	AL... 40	AS... H 60
空心轴径 Ø 20 mm / Hollow shafts up to Ø 20 mm	x	x		
大型空心轴径 Ø 50 mm Large hollow shaft up to Ø 50 mm				x
实心轴径 Ø 14 mm / Solid shafts up to Ø 14 mm	x	x	x	
可进一步增加附加装置 Possibility to further add-on units	x			x
大尺寸端子箱 Generously dimensioned terminal box	x	x	x	x
第二信号输出 (增量) Second signal output (incremental)	x	x		x
两种不同的接口 Two different interfaces	x			x
轧钢厂防盐水、轧机潮湿区域 Saltwater-proof, wet areas in rolling mills	x		x	
特殊加强的轴承 / 轴装置耐高温可达 +100 °C (活套) Specially reinforced bearings / Shaft and device temperature up to +100 °C (looper)			x	
选项具有各种接头和电缆 / Connection options with a variety of connectors or cables	x	x	x	x
合附件和安装服务 (可选) Suitable attachments and mounting service (optional)	x	x	x	x

技术参数 A...(HJ) 40 和 AM...(H) 41

Technical data A...(HJ) 40 and AM...(H) 41

系列 / Series	AS <input type="checkbox"/> (HJ) 40 (单圈) / (Singleturn) AM <input type="checkbox"/> (HJ) 40 (多圈) / (Multiturn)	AM <input type="checkbox"/> (H) 41 (多圈 / Multiturn – SIL)
接口 Interfaces	<ul style="list-style-type: none"> S = SSI SI = SSI + 增量 / SSI + Incremental E = EtherCAT PA = Parallel P = PROFIBUS-DP N = DeviceNet 	<ul style="list-style-type: none"> P = PROFIsafe via PROFIBUS-DP PN = PROFIsafe via PROFINET IO 附加增量输出 Additional incremental output
接口数 (绝对值) Number of interfaces (absolute)	1 (选项 / optional 2) 	1 
分辨率 最大 Resolution max.	16 bit 位单圈 / Singleturn; 12 bit 位多圈 / Multiturn	13 bit 位单圈 / Singleturn; 15 bit 位多圈 / Multiturn
供电电源 Supply voltage	12 – 30 VDC	13 – 27 VDC
保护等级 (可达) Degree of protection (up to)	IP66 / IP67	IP66
装置温度范围 Device temperature range	-25 ... +85 °C (-40 ... +85 °C 选项 / optional)	-25 ... +70 °C
抗振动/冲击 Vibration / Shock resistance	20 g / 150 g	10 g / 100 g
重量 (大约) Weight (approx.)	3 – 5 kg	3.5 – 4 kg
特殊功能 / 认证 Special features / Certifications	重载 + 编码器扩展  Heavy duty + encoder extensions	UL / CSA, SIL 3 / PL e 
实心轴设计 / Solid shaft design		
图片 Image		
结构形式: 轴端带键 Construction type; Shaft end with feather key	B5 / B35; Ø 11 / Ø 14 mm	B5 / B35; Ø 14 mm
允许机械速度 Approved mechanical speed	最大. / max. 6000 rpm	最大. / max. 6000 rpm
空心轴设计 / Hollow shaft design		
图片 Image		
空心轴带键槽 Hollow shaft with keyway	Ø 20 mm (Ø 16 mm: 夹紧) Ø 20 mm (Ø 16 mm: clamping)	Ø 20 mm
允许机械速度 Approved mechanical speed	最大. / max. 4000 rpm	最大. / max. 4000 rpm
选项 / Options		
附加增量输出 Additional incremental output	选项 / Optional 	标准 / Standard 
进一步附件的可能性 Possibility for further attachments	第二出轴 (仅 B5 / B35) Second shaft end (only B5 / B35)	-

技术参数 AL... 40 和 AS...H 60

Technical data AL... 40 and AS...H 60

系列 / Series	AL <input type="checkbox"/> 40 (单圈 活套 / Singleturn Looper)	AS <input type="checkbox"/> H 60 (单圈 / Singleturn)
接口 Interfaces	<p>S = SSI</p> <p>PA = Parallel</p> <p>I = 增量 / Incremental (FGL 40)</p>	<p>S = SSI</p> <p>E = EtherCAT</p> <p>PA = Parallel</p>
接口数 (绝对值) Number of interfaces (absolute)	1 	1 (选项 / optional 2) 
分辨率 最大 Resolution max.	16 bit 位单圈 / Singleturn	16 bit 位单圈 / Singleturn
供电电源 Supply voltage	12 – 30 VDC	12 – 30 VDC
保护等级 (可达) Degree of protection (up to)	IP66 / IP67	IP55
设备温度范围 Device temperature range	-25 ... +100 °C	-25 ... +85 °C
抗振动 / 冲击 Vibration / Shock resistance	20 g / 450 g	10 g / 100 g
重量 (大约) Weight (approx.)	3.5 – 4 kg	7 – 8 kg
特殊功能 / 认证 Special features / Certifications	对于极端冲击载荷 For extreme shock loads 	大型空心轴+编码器拓展 Large hollow shafts + encoder extensions 
实心轴设计 / Solid shaft design		
图片 Image		
结构形式: 轴端带键 Construction type; Shaft end with feather key	B5 / B35; Ø 11 / Ø 14 mm	-
允许机械速度 Approved mechanical speed	最大. / max. 4000 rpm	-
空心轴设计 / Hollow shaft design		
图片 Image		
空心轴带键槽 Hollow shaft with keyway	-	最大. / max. Ø 50 mm
允许机械速度 Approved mechanical speed	-	最大. / max. 4000 rpm
选项 / Options		
附加增量输出 Additional incremental output	增量编码器 Incremental encoder FGL 40 	选项 / Optional 
进一步附件的可能性 Possibility for further attachments	-	带适配法兰 (B14) with adapter flange (B14)



组合选项 A...(HJ) 40 / AS...H 60 Combination options A...(HJ) 40 / AS...H 60

A...(HJ) 40 und AS...H 60 定制的系统组合选项的应用，需要相同的多重信号或不同的接口和输出型号。

The series A...(HJ) 40 and AS...H 60 offers tailor-made system combination options for applications that require multiples of the same signals or different interfaces and output signals.



实例：一个、两个、四个和六个端子箱 / Examples for one, two, four and six terminal boxes

可提供的接口和输出信号

每个端子箱能容纳下列功能之一：



AE
ABSOLUTE
ENCODER

- SSI
- SSI 带增量
- EtherCAT
- Parallel
- PROFIBUS-DP
- DeviceNet



AE
ABSOLUTE
ENCODER

- SSI
- SSI with incremental
- EtherCAT
- Parallel
- PROFIBUS-DP
- DeviceNet



IE
INCREMENTAL
ENCODER

- HTL 或 TTL 可达一百万 ppr
- Sin / Cos 可达 2500 正弦周期



IE
INCREMENTAL
ENCODER

- HTL or TTL up to one million ppr
- Sin / Cos up to 2500 sine periods

附加的超速开关可提供如下功能：



OS
OVERSPEED
SWITCH

- 两个速度开关（可编程）
- 一个诊断开关



OS
OVERSPEED
SWITCH

- Two speed switches (programmable)
- One diagnostics switch



或者，需要多个输出信号的应用，我们推荐经过实践检验的 U-ONE 系统。/ Alternatively we recommend for applications that require multiple output signals our proven U-ONE-System.

接线技术 Connection technology

可提供接线技术 Possible connection technology	A...(HJ) 40	AM...(H) 41	AL... 40	AS...H 60
端子箱内端子排 Terminal strip in a terminal box	x		x	x
直出电缆 Fixed cable	x		x	x
现场总线箱 Fieldbus box	x	x		
12 针 Burndy 圆接头 12-pole round connector Burndy	x			
12 针 M23 圆接头 12-pole round connector M23	x			
15 针工业接头 15-pole industrial connector	x			

其它接线技术可指定 / Other connection technologies on request.



端子箱内端子排 / Terminal strip in a terminal box



直出电缆 / Fixed cable



现场总线箱 / Fieldbus box



Burndy 接头 / Burndy connector



M23 接头 / M23 connector



工业接头 / Industry connector

向您推荐我们为极端环境条件定制的电缆保护系统。

We are pleased to advice you about our custom-made cable protection systems for extreme environmental conditions.

应用实例 Application examples



热轧 / 侧导板: 绝对值编码器 AMS (SSI 接口)
Hot rolling mill / Side guides: absolute encoder AMS (SSI interface)



热轧 / 主传动: 空心轴增量编码器 FGH6, 电子超速开关 EGS40 和绝对值编码器 AMS (SSI 接口)
Hot rolling mill / Main drive: hollow shaft incremental encoder FGH 6, electronic overspeed switch EGS 40 and absolute encoder AMS (SSI interface)



热轧 / 活套: 绝对值编码器 ALS 带有 SSI 接口, 为极端恶劣的活套位置设计 (例如轴承和加固的轴)
Hot rolling mill / Looper: absolute encoder ALS with SSI interface in special robust looper design (e. g. bearings and shaft reinforced)



热轧 / 主传动: 空心轴绝对值编码器 ASPAH 60 (并行接口), 带电子超速开关 EGS 40
Hot rolling mill / Main drive: hollow shaft absolute encoder ASPAH 60 (parallel interface) with attached electronic overspeed switch EGS 40



挖掘机 / 回转齿轮: 绝对值编码器 AMPN 41 (PROFIsafe via PROFINET, SIL 3 / PL d)
Excavator / Slewing gear: absolute encoder AMPN 41 (PROFIsafe via PROFINET, SIL 3 / PL d)



能源供应公司 / 压块机: 绝对值编码器 ASPN (接口 PROFINET IO)
Energy supply company / Briquetting press: absolute encoder ASPN (interface PROFINET IO)

应用实例 Application examples



炼钢 / 翻斗车: 轴承座连接有 增量编码器 FG 40 和绝对编码器 AMS (SSI 接口)

Steel making / Skip car: bearing block with incremental encoder FG 40 and absolute encoder AMS (SSI interface)



轧机 / 压下装置: 绝对值编码器 AMSI (SSI 接口和增量输出) 和附加的绝对值编码器 AMS (SSI 接口)

Rolling mill / Screw downs: absolute encoder AMSI (SSI interface and incremental output) and attached absolute encoder AMS (SSI interface)



轧机 / 主传动: 空心轴绝对编码器 ASEH 60 (EtherCAT 接口) 和附加的电子超速开关 EGS 41

Rolling mill / Main drive: hollow shaft absolute encoder ASEH 60 (EtherCAT interface) and attached electronic overspeed switch EGS 41



物料搬运 / 翻车机: 轴承座连接有 绝对值编码器 AMN (DeviceNet 接口)

Material handling / Wagon tippler: bearing block with attached absolute encoder AMN (DeviceNet interface)



采矿 / 提升机: 轴承座连接有 冗余增量编码器 FG 40 KK 和绝对编码器 AMN L (带 FOC 连接的 DeviceNet 接口)

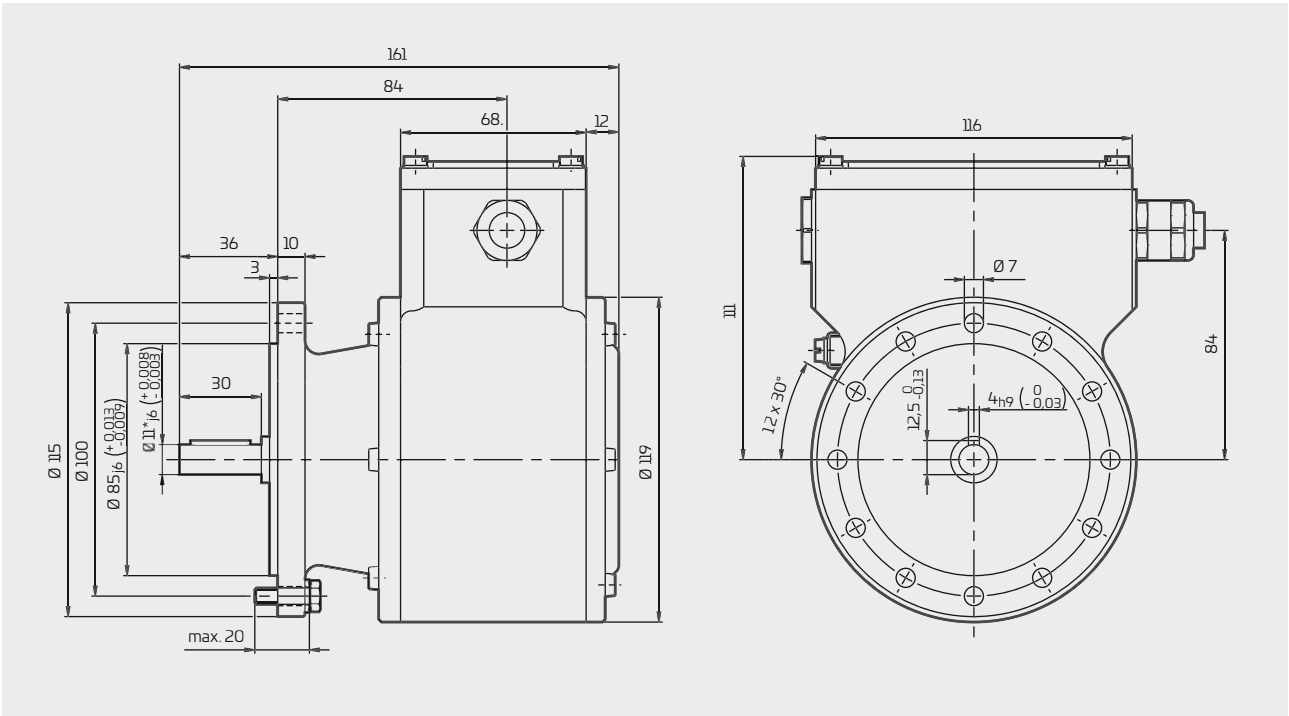
Mining / Winder: bearing block with redundant incremental encoder FG 40 KK and absolute encoder AMN L (DeviceNet interface with FOC connection)



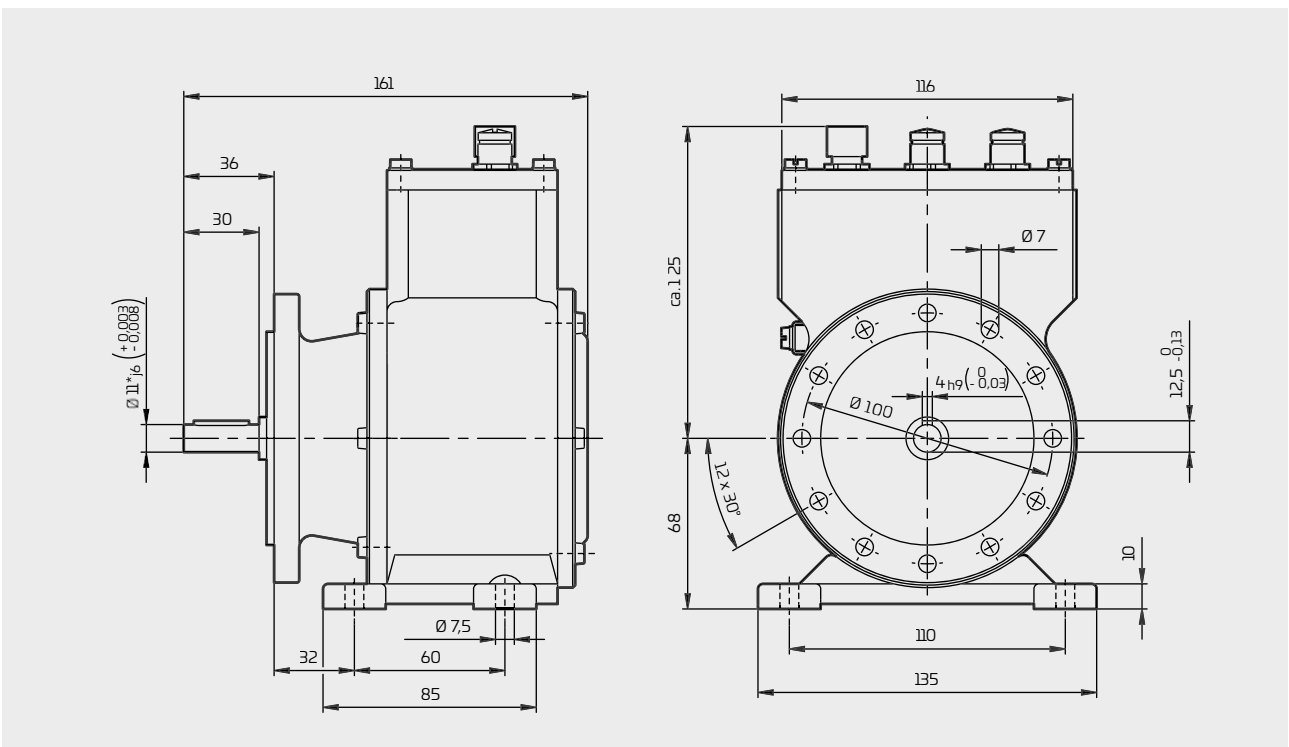
物料搬运 / 传送带: 带绝对值编码器 AMP (PROFIBUS 接口) 的绳长变送器

Material handling / Conveyor belt: rope length transmitter with attached absolute encoder AMP (PROFIBUS interface)

尺寸图 A... 40
Dimension drawings A... 40

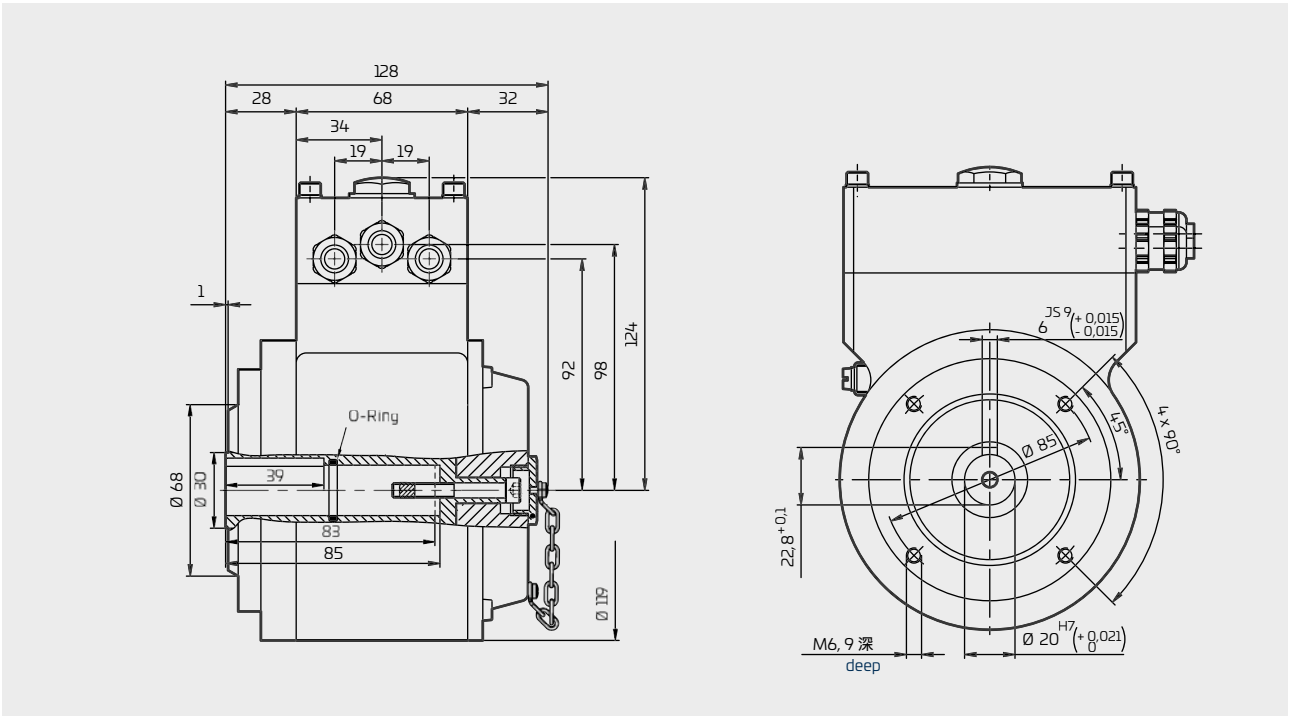


AMS40K 结构形式 B5 带有 SSI 接口 (多圈)
Construction type B5 with SSI interface (Multiturn)

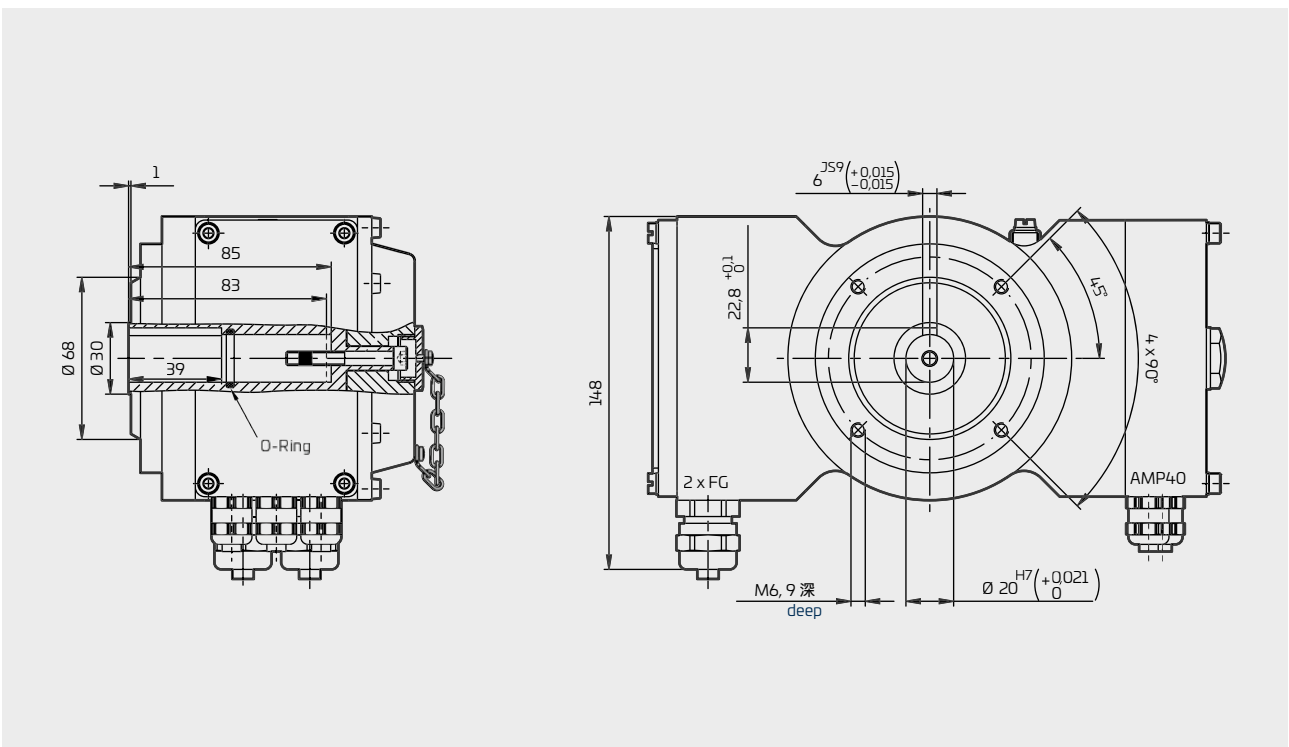


ASE40K 结构形式 B35 带有 EtherCAT 接口 (单圈)
Construction type B35 with EtherCAT interface (Singleturn)

尺寸图 A...H(J) 40
Dimension drawings A...H(J) 40

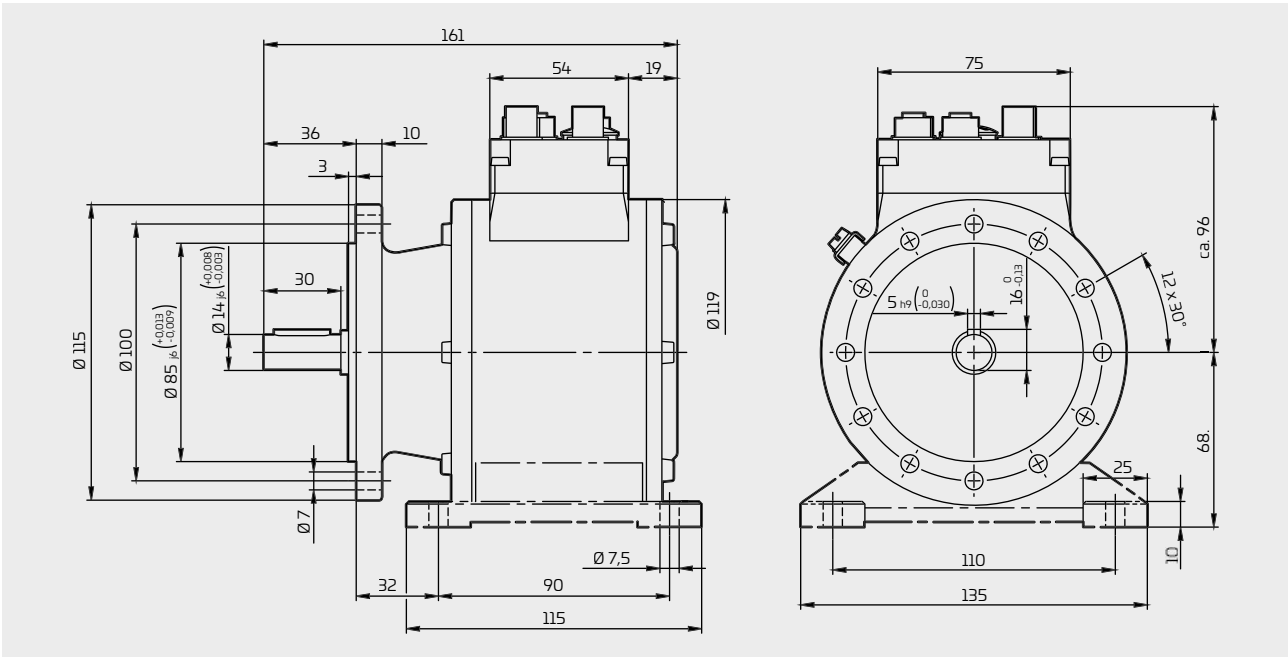


AMPH(J) 40 K/20 P 空心轴设计带 PROFIBUS 接口
Hollow shaft design with PROFIBUS interface



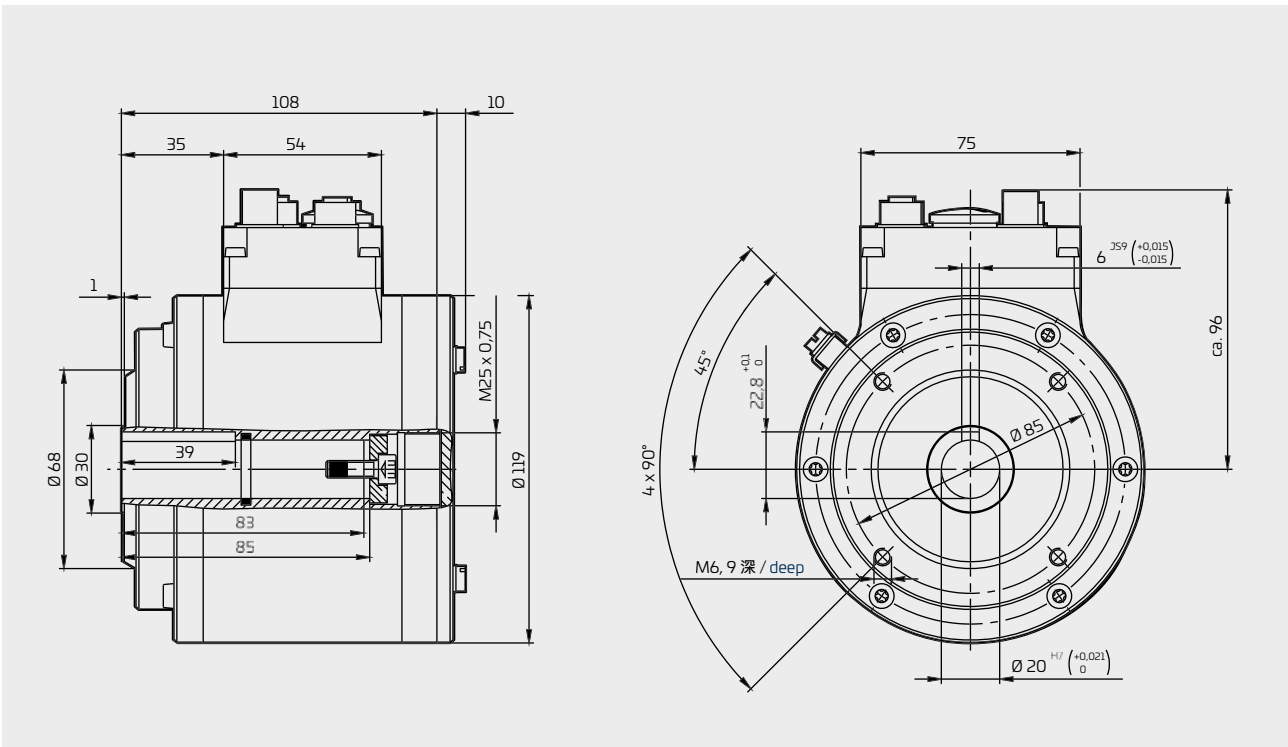
AMPH(J) 40 KK-FG/20 P 空心轴设计两个端子箱，带并行和增量接口
Hollow shaft design with two terminal boxes, with parallel and incremental interface

尺寸图 AM...(H) 41
Dimension drawings AM...(H) 41



AMP41

结构形式 B35/B5, 底座用虚线表示, 带 PROFIBUS 接口
Construction type B35/B5 foot indicated by dashed line, with PROFIBUS interface



AMPNH 41

空心轴设计带 PROFINET 接口
Hollow shaft design with PROFINET interface



选型表 A... 40 / A...H(J) 40 Type code A... 40 / A...H(J) 40

A...(HJ) 40

绝对值编码器 / Absolute encoder

AS = 单圈 / Singleturn

AM = 多圈 / Multiturn

接口 / Interface

S = SSI

SI = SSI 带增量 / SSI with incremental

E = EtherCAT

PA = Parallel

P = PROFIBUS-DP

N = DeviceNet

结构形式 / Construction type

- = 实心轴 / Solid shaft

H = 空心轴 / Hollow shaft

HJ = 空心轴 (绝缘) / Hollow shaft (isolated)

系列 / Series

电气接线 / Electrical connection

K = 端子箱内端子排 / Terminal strip in a terminal box

C = 直出电缆 / Fixed cable

R = 12 针圆接头 Burndy / 12-pole round connector Burndy

T = 12 针圆接头 M23 / 12-pole round connector M23

S = 15 针工业接头 / 15-pole industrial connector

KK = 第二端子箱 (输出信号可指定)

Second terminal box (available output signals on request)

分辨率 单圈 / Resolution Singleturn

12 = 12 bit

13 = 13 bit

14 = 14 bit

15 = 15 bit

16 = 16 bit

分辨率 多圈 / Resolution Multiturn

- = 单圈编码器 / Singleturn encoder

12 = 12 bit

轴 / Shaft

带滑键 / 键槽 / with feather key / feather keyway

- = 实心轴 / Solid shaft: $\varnothing 11\ j6\ \text{mm}$ (选项 / Optional 14 $j6$)

20P = 空心轴 / Hollow shaft: $\varnothing 20\ H7\ \text{mm}$

带夹紧 / with clamping

16K = 空心轴 / Hollow shaft: $\varnothing 16\ H7\ \text{mm}$

选型表 AM...41 / AM...H 41 和 AL... 40

Type code AM... 41 / AM...H 41 and AL... 40

AM...(H) 41	AM		41	K	-	13	15
绝对值编码器 / Absolute encoder 多圈 / Multiturn							
接口 / Interface P = PROFIsafe 通过 / via PROFIBUS-DP PN = PROFIsafe 通过 / via PROFINET IO							
结构形式 / Construction type - = 实心轴 / Solid shaft H = 空心轴 / Hollow shaft							
系列 / Series							
电气接线 / Electrical connection K = 带 M12 圆接头的总线盖 / Bus cover with round connector M12							
分辨率 单圈 / Resolution Singleturn 13 = 13 bit							
分辨率 多圈 / Resolution Multiturn 15 = 15 bit							
AL... 40	AL		40		-		
绝对值编码器 / Absolute encoder 活套 / Looper							
接口 / Interface S = SSI PA = Parallel I = 增量 / Incremental (FGL 40)							
系列 / Series							
电气接线 / Electrical connection K = 端子箱内端子排 / Terminal strip in a terminal box C = 直出电缆 / Fixed cable							
分辨率 单圈 / Resolution Singleturn 12 = 12 bit 14 = 14 bit 16 = 16 bit 13 = 13 bit 15 = 15 bit							

选型表 AS...H 60

Type code AS...H 60

AS...H 60	AS		H	60	-	/	50P
绝对值编码器 / Absolute encoder 单圈 / Singleturn							
接口 / Interface S = SSI E = EtherCAT PA = Parallel							
结构形式 / Construction type H = 空心轴 / Hollow shaft							
系列 / Series							
电气接线 / Electrical connection K = 端子箱内端子排 / Terminal strip in a terminal box C = 直出电缆 / Fixed cable KK = 第二端子箱 (输出信号可指定) Second terminal box (available output signals on request)							
分辨率 单圈 / Resolution Singleturn 12 = 12 bit 13 = 13 bit 14 = 14 bit 15 = 15 bit 16 = 16 bit							
轴 / Shaft 带键槽 / with feather keyway 50P = 空心轴 / Hollow shaft: Ø 50 H7 mm							

Johannes Hübner

Fabrik elektrischer Maschinen GmbH
Siemensstrasse 7
35394 Giessen
Germany
Tel./Phone: +49 641 7969-0
Fax: +49 641 73645
E-mail: info@huebner-giessen.com
www.huebner-giessen.com

中国代理:

鞍山维盛自动化科技有限公司
地址: 辽宁省鞍山市高新区千山中路 153 号
鞍山软件园二期三楼
总机: 0412-5223868
手机: 13941248798/13504120338
传真: 0412-5214675
E-mail: info@aswisdom.com
网址: www.aswisdom.com



世界范围合作伙伴 | Partner worldwide

