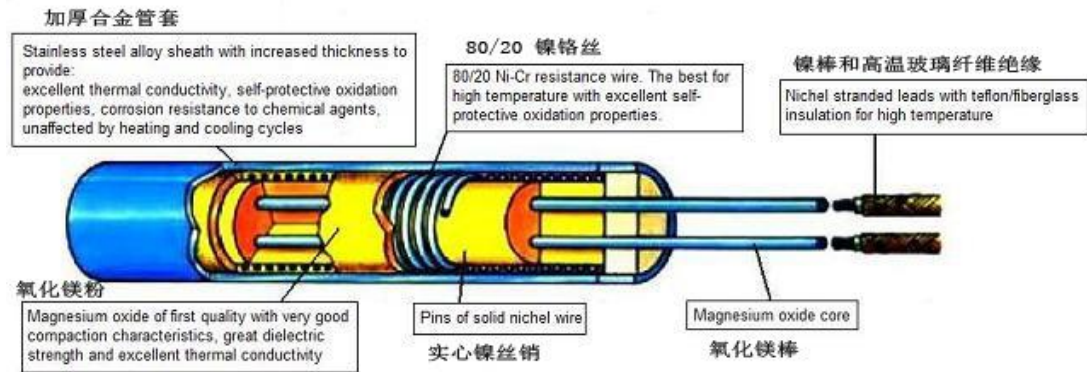


High Density Cartridge Heater Structure



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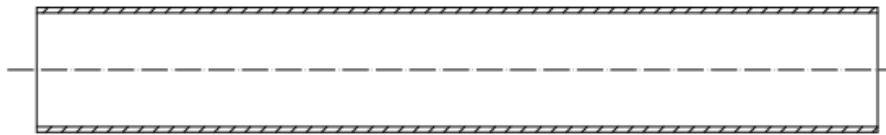
High Density Cartridge heater Mainly steps

(HD 单头管主要生产流程)

1. cut the tube according to the length need.

(Pic 2)

首先要将管子定长裁剪(开料) (如 Pic2)



(Pic 2)

Machine: CT-15, CT-30 or ZCT-40 PLC (according to the diameter need to cut and customers requirement)

开料机器可选择 CT-15,CT-30 或者 ZCT-40 PLC (根据管径, 管长和客户需求选择)

Item: CT-15 tube cutting machine 型号: CT-15 开料机

Max diameter cut: \varnothing 15mm 最大开料管径: \varnothing 15mm

Air supply: 0.6 MPA clean compressed air

使用气源: 0.6MPA 干净压缩空气

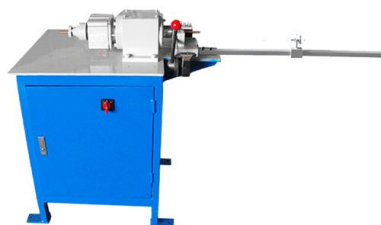


Item: CT-30 tube cutting machine 型号: CT-30 开料机

Max diameter cut: \varnothing 30mm 最大开料管径: \varnothing 30mm

Air supply: 0.6 MPA clean compressed air

使用气源: 0.6MPA 干净压缩空气



Item: ZCT-40 PLC full auto tube cutting machine

型号: ZCT-40 PLC 全自动开料机

Suitable cut diameter: \varnothing 6- \varnothing 12mm 适合管径: \varnothing 6- \varnothing 12mm

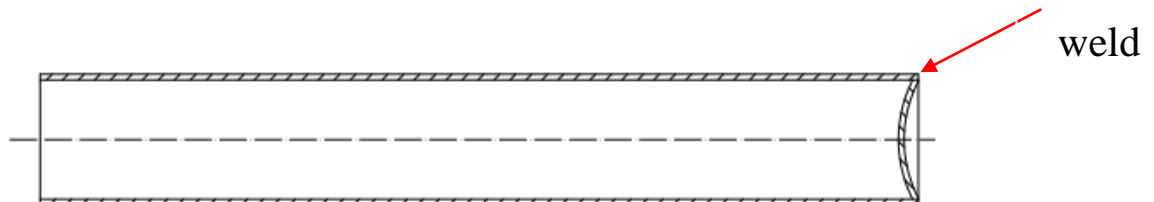
Air supply: 0.6 MPA clean compressed air

使用气源: 0.6MPA 干净压缩空气



2. weld the bottom of the tube (Pic 3)

然后底部焊接密封 （见 Pic 3）



(Pic 3)

Machine: XHJ-200 Auto Rotary Welding Machine

型号: XHJ-200 旋焊机

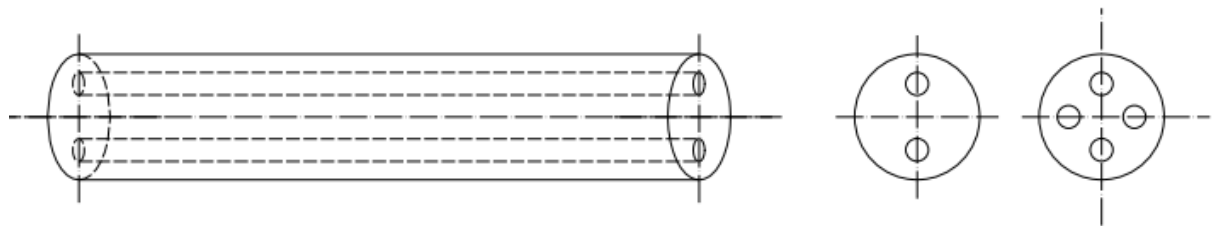


we use a metal pc with hole for weld sample, when you weld the tubes for cartridge heater, should use without hole.

我们焊接的样品是用一个有孔的金属片，生产单头管焊接管子的底部需要无孔的。

3. buy MGO rods from factory. (the style of MGO rods depend on your requirement and technology) (Pic 4)

到专门的工厂购入的 MGO 棒(镁棒规格款式根据工艺和需要而定) (如 Pic4)



(Pic 4)

4. coil the resistance wire on the MGO rod.

在 MGO 棒上绕制带螺距的发热丝

Machine: DRS23 PLC Resistance Winding Machine 型号: DRS23 PLC 绕线机

Max. length: 500mm 最大绕线长度: 500mm

Min. diameter: $\Phi 0.07\text{mm}$ 最小丝径: $\phi 0.07\text{mm}$



5. Put the nickel wire or iron wire inside the MGO rod hole.

在 MGO 棒内的小孔穿入铁丝

6. weld the end of resistance wire with iron wire.

将发热丝线端与铁丝焊接

**7. put the assembled resistance wire with
MGO rods in the middle of the tube**

将组件放进管子中间

**8. put the tubes on filling machine to fill
MGO powder.**

在填充机上进行 MGO 粉的填充

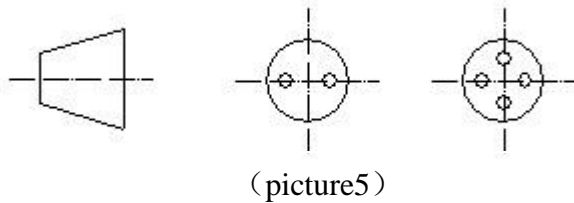
cartridge heater put MGO rod inside first, and then fill MGO powder.

先穿镁棒，后填镁粉



9. seal the filled heaters by sealer (Pic 5)

将已填充好的管子封口（橡胶塞）（Pic 5）



10. reduce heater to increase density.

进行缩管工序,增加密度。

There are mainly 3 styles of reducing machine to choose for cartridge heaters, depend on the length, diameter and requirement of factory.

单头管的缩管机主要有 3 款机器可选择，根据管径，长度和工厂要求而定。

A. DG30 swaging machine (main machine for cartridge heater)

DG30 单动锤击式缩管机（单头管的缩管机一般选择用此机器）



Main TECHNICAL PARAMETER: （主要技术参数）

Max reduce diameter: $\phi 15\text{mm}$ or $\phi 30\text{mm}$. (depend on order)

最大缩减管径: $\phi 15\text{mm}$ 或 $\phi 30\text{mm}$ （根据订单选择）

Min. Length: 60mm

最小缩管长度：60mm

Reduce different diameter require change related molds, molds change easy. Suitable for cartridge heater in various size, and not bulk production.

缩减不同管径需要更换相关的模具，模具更换简单快捷。适合用于多规格，批量少的单头管缩管。

B. SG reducing machine such as SG8B, SG12B (depend on the diameter and length need to reduce)

SG 滚压式缩管机，例如 SG8B, SG12B 等（根据管径，长度选择合适的缩管机）



Need to change roller or roll assemble for different diameter heater reducing.

缩减不同管径需要更换相应的滚轮或者轧辊总成。

Min reduce length: 200mm.

最短缩管长度：200mm

Suitable for one or several diameters cartridge heaters reduce, and in bulk production.

(reduce efficiency higher than DG30)

适合单一规格或者少规格，大批量的单头管缩管。（缩管效率高于 DG30）

DSG12A reducing machine for short heater DSG12A 短管缩管机



Recommend reduce range: $\phi 4\text{-}\phi 9.5\text{mm}$ (according to order, one diameter need one set roller)

建议缩减管径: $\phi 4\text{-}9.5\text{mm}$ (根据订单定做, 一个管径需要一套滚轮)

Min reduce length: 20mm

最短缩管长度: 20mm

Suitable for short heaters in one diameter or several diameters and bulk production, specially short cartridge heater, such as cartridge heaters for auto.

适合于单一规格或少规格, 大批量的短管缩管, 特别适用于短的单头管, 例如汽配发热管。



11. polish the surface of heater (if need)

管子表面抛光（根据实际情况选择是否需要）

Machine: PG-30 polishing machine

PG-30 抛光机



12. Centerless grinde 无心磨床



If your heater's diameter tolerance is strict , so you need this machine to be ground finished for tube. (tolerance 's range : $\pm 0.02\text{mm}$)

<http://tubemachines.com>

如需外径尺寸 $\pm 0.02\text{mm}$ 一下，需要用到此设备

13. trimming the end of the tube (move the plastic sealer out, and dig MGO powder.)

电热管末端修整（将胶塞除去，挖粉）

CG20 roll turning machine (CG20 车管机)



14. cover with sealer 塞子封口

15. weld power output wire.

焊接电源引出线