

# 派克硬管接头——管末端



样本: **3400 CN**  
4300 US  
4100 UK  
4100 CN\*



ENGINEERING YOUR SUCCESS.

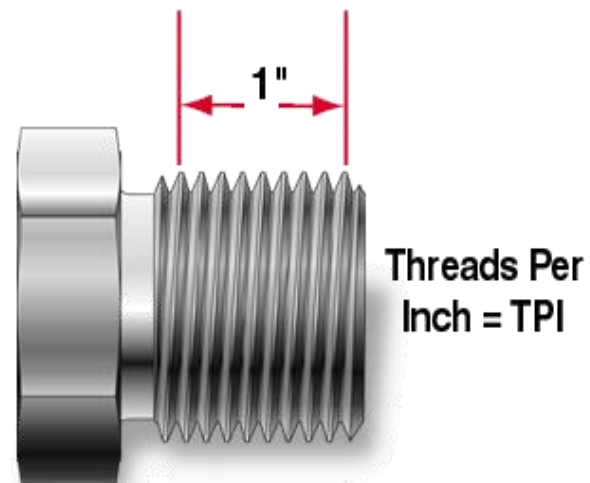
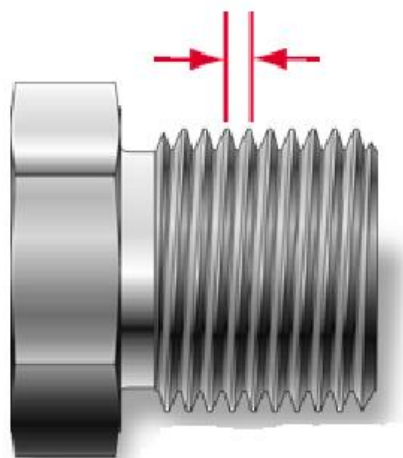
# 主要内容

- 管末端密封型式
- E0 卡套式接头
- **E0接头选型**
- O-Lok 平面密封接头
- Triple-LOK 锥面密封接头
- **O-LOK&Triple-LOK选型**

# 螺纹基础

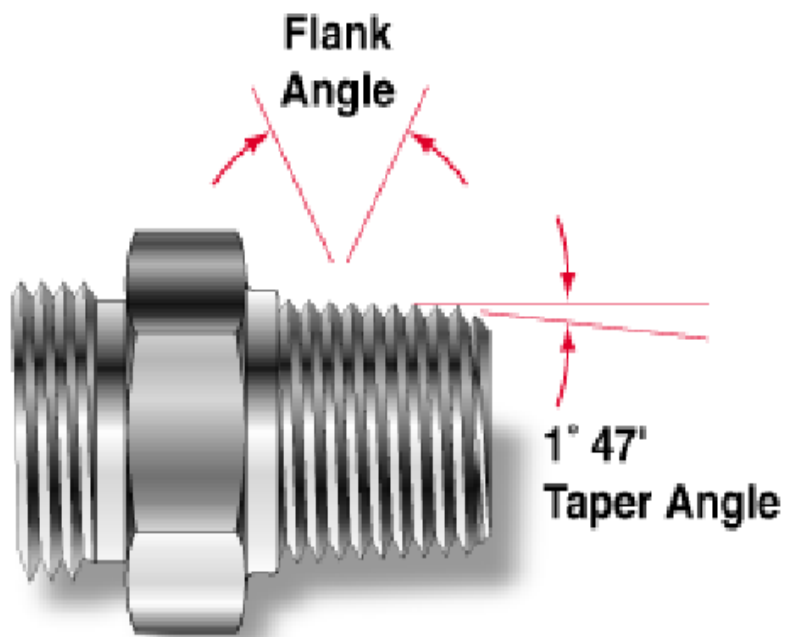
## ● 螺距

- 螺距是指相邻两个螺纹之间的距离
- 螺距有时也可用每英寸的螺纹数来表示
  - 例如：每英寸8个螺纹

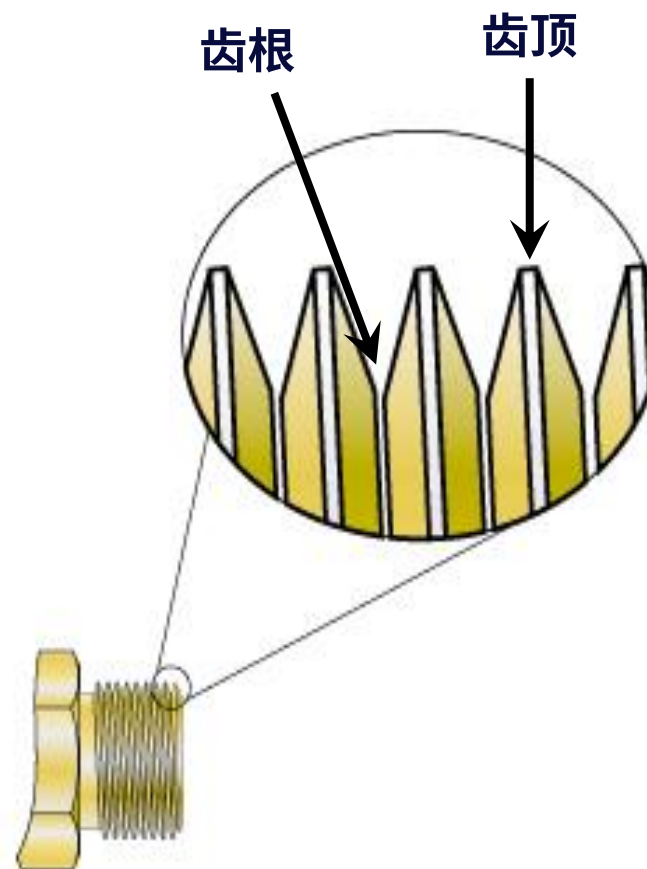


# 螺纹基础

- 牙侧角和圆锥角

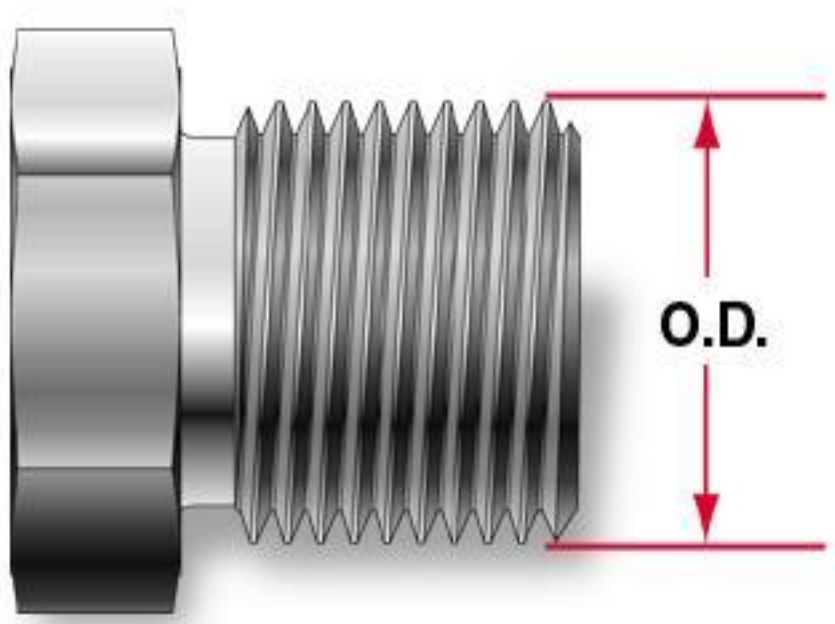


- 齿顶和齿根



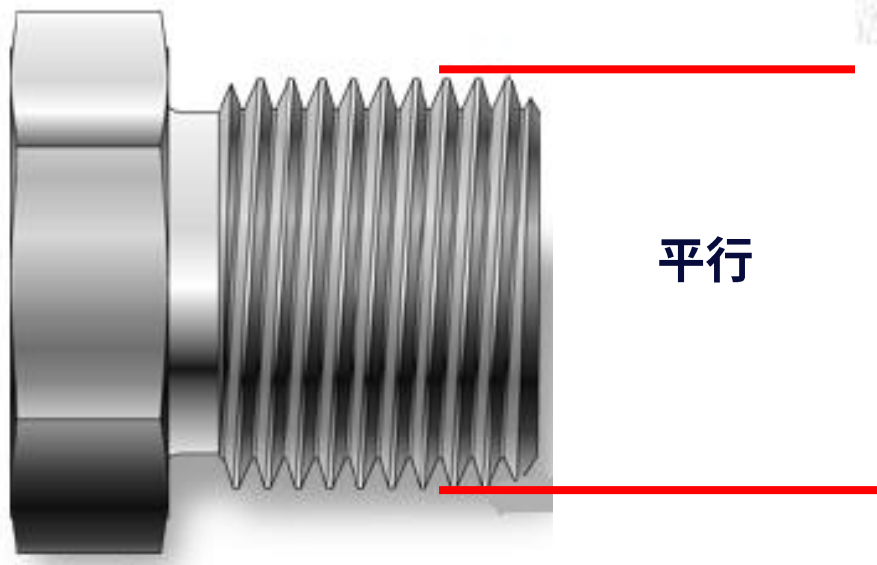
# 螺纹基础

- 大径 OD



# 螺纹基础

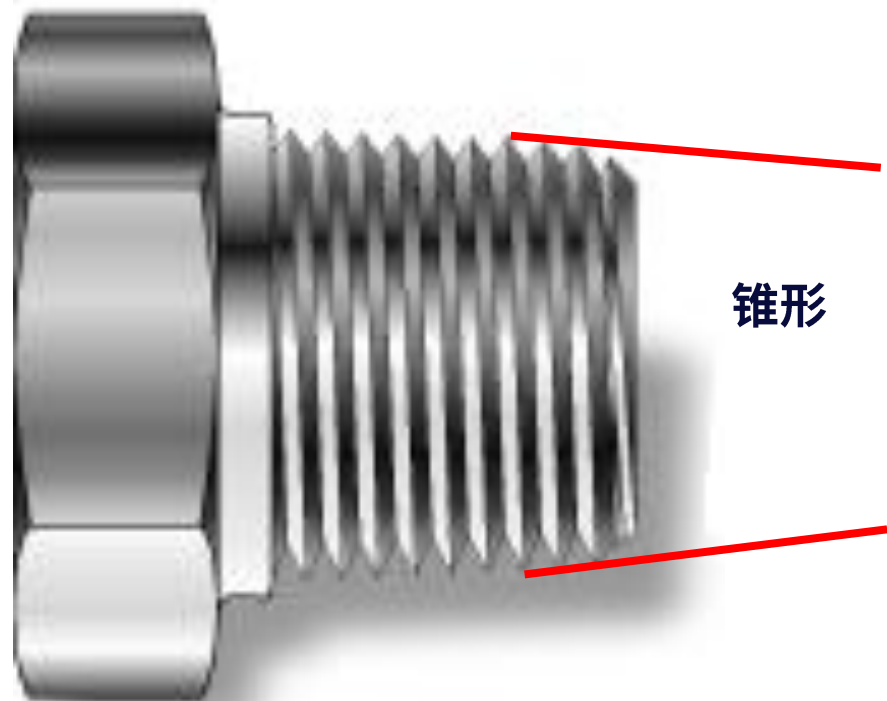
直螺纹(也称为圆柱螺纹)



- 圆柱螺纹只能用于接头的紧固连接
- 密封方式通常采用密封圈，例如O型圈

# 螺纹基础

## 圆锥螺纹



- 圆锥螺纹常用于接头紧固连接
- 有时需要添加密封胶

# 螺纹基础

## ● 螺纹类型

NPT/NPTF	- 锥螺纹 (美制管螺纹) National Pipe Thread, Fine
UN/UNF	- 直螺纹 (SAE 直螺纹) Unified, Fine 统一, 细牙
BSPT	- 锥螺纹 (英制管螺纹) British Standard Pipe, Tapered
BSPP	- 直螺纹 (英制管螺纹) British Standard Pipe, Parallel
Metric	- 锥螺纹 (公制螺纹)
Metric	- 直螺纹 (公制螺纹)

例如: ~~M20x1.5~~ (tapered)

~~10x1~~ 表示公制螺纹

10 = 实际尺寸, 单位 mm  
1.5 = 螺距 (螺纹间距, 单位 mm)

螺距通常根据已知标准来设计!  
PF 是德文的缩写, 意思是圆锥形

直管螺纹标注为 PF 3/8

日标锥管螺纹标注为 PT 3/8



# 螺纹基础

## ●管接件产品常用螺纹参考表（一）：

L系列 - 中压		
硬管外径 (mm)	系列	管端螺纹尺寸 (公制直螺纹)
6	L	M12 x 1.5
8	L	M14 x 1.5
10	L	M16 x 1.5
12	L	M18 x 1.5
15	L	M22 x 1.5
18	L	M26 x 1.5
22	L	M30 x 2
28	L	M36 x 2
35	L	M45 x 2
42	L	M52 x 2

表15 - L系列螺纹

S系列 - 高压		
硬管外径 (mm)	系列	管端螺纹尺寸 (公制直螺纹)
6	S	M14 x 1.5
8	S	M16 x 1.5
10	S	M18 x 1.5
12	S	M20 x 1.5
14	S	M22 x 1.5
16	S	M24 x 1.5
20	S	M30 x 2
25	S	M36 x 2
30	S	M42 x 2
38	S	M52 x 2

表16 - S系列螺纹

# 螺纹基础

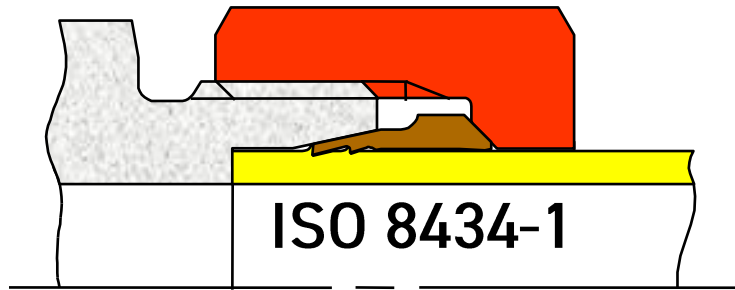
## ● 管接件产品常用螺纹参考表（二）：

SAE 划线 尺寸	(1) SAE O型圈 (2) SAE直 螺纹 (3) SAE 37°扩口 (4) SAE 24°锥 螺纹尺寸	SAE J1453 O型圈平面 密封 (ORFS) 螺纹尺寸	SAE 45° 扩口 螺纹尺寸	管螺纹	
				NPT/ NPTF NPSM 螺纹尺寸	BSPP/ BSPT 螺纹尺寸
2	5/16-24	—	5/16-24	1/8-27	1/8-28
3	3/8-24	—	3/8-24	—	—
4	7/16-20	9/16-18	7/16-20	1/4-18	1/4-19
5	1/2-20	—	1/2-20	—	—
6	9/16-18	11/16-16	5/8-18	3/8-18	3/8-19
8	3/4-16	13/16-16	3/4-16	1/2-14	1/2-14
10	7/8-14	1-14	7/8-14	—	—
12	1 1/16-12	1 3/16-12	1 1/16-14	3/4-14	3/4-14
14	1 3/16-12	—	—	—	—
16	1 5/16-12	1 7/16-12	—	1-11 1/2	1-11
20	1 5/8-12	1 11/16-12	—	1 1/4-11 1/2	1 1/4-11
24	1 7/8-12	2-12	—	1 1/2-11 1/2	1 1/2-11
32	2 1/2-12	—	—	2-11 1/2	2-11

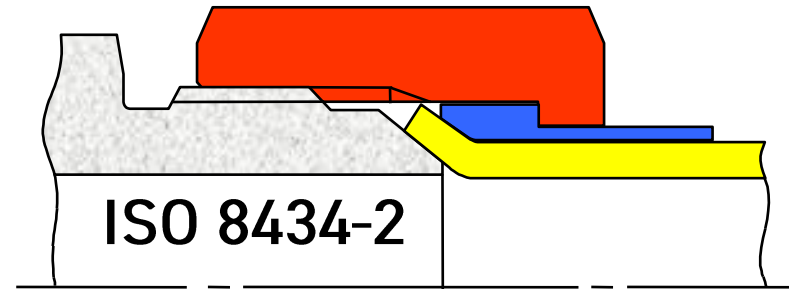
表29 - 常见英制接头端类型及螺纹尺寸

# 中小管径硬管接头连接型式及其标准

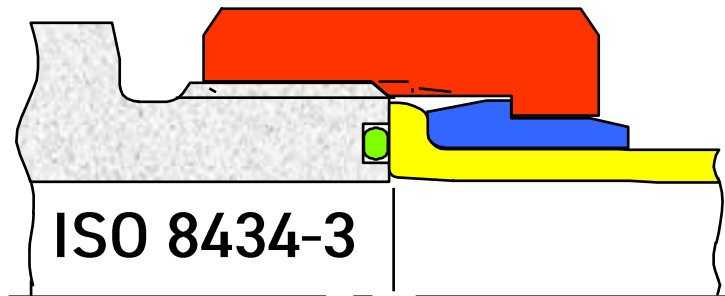
E0 卡套式



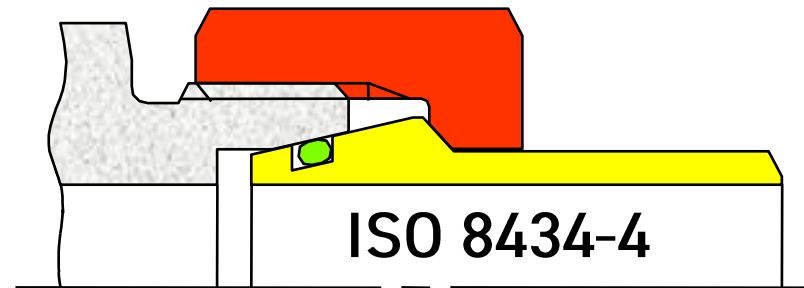
Triple - Lok



Seal - Lok

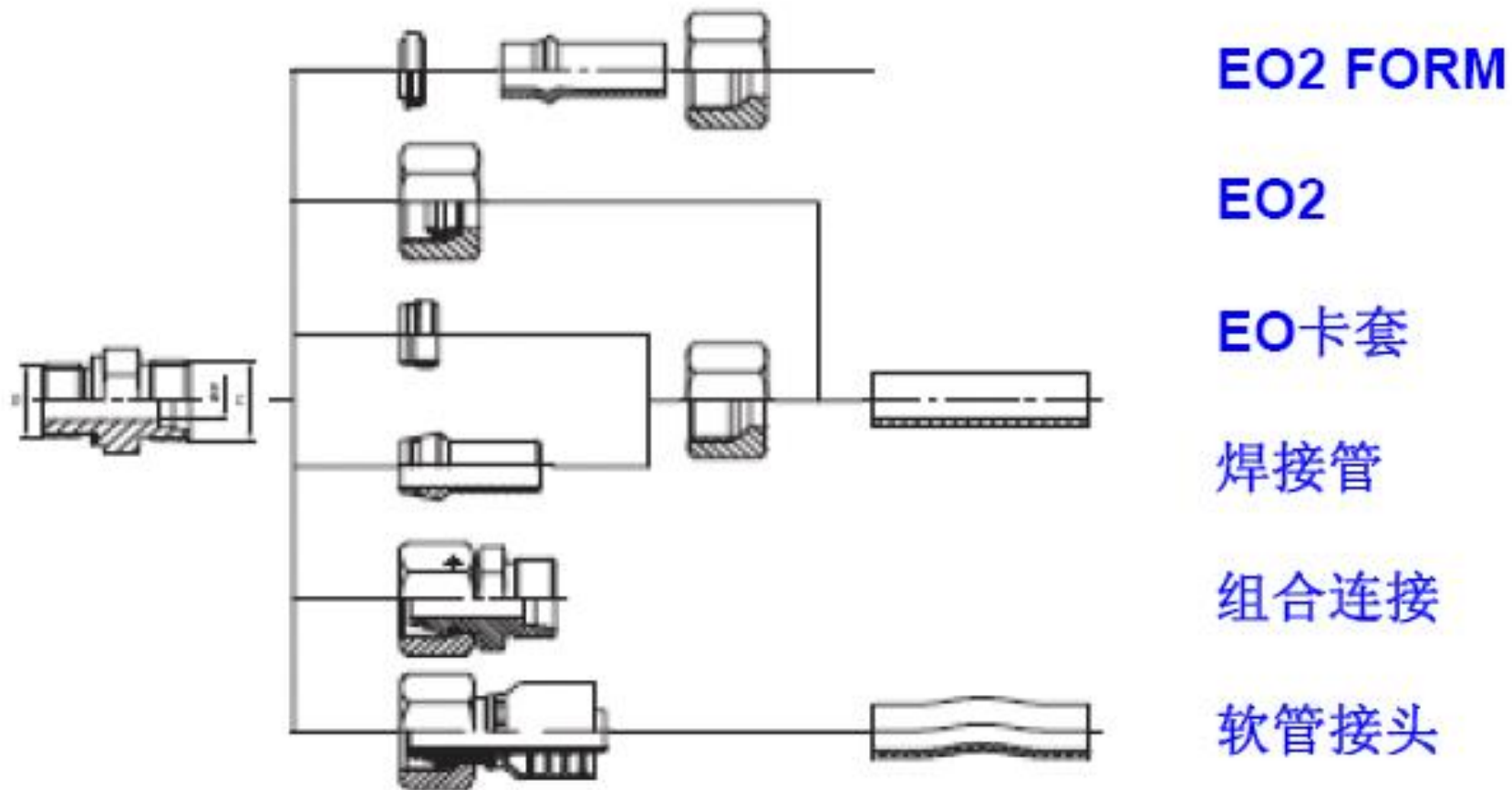


E0 焊接接头



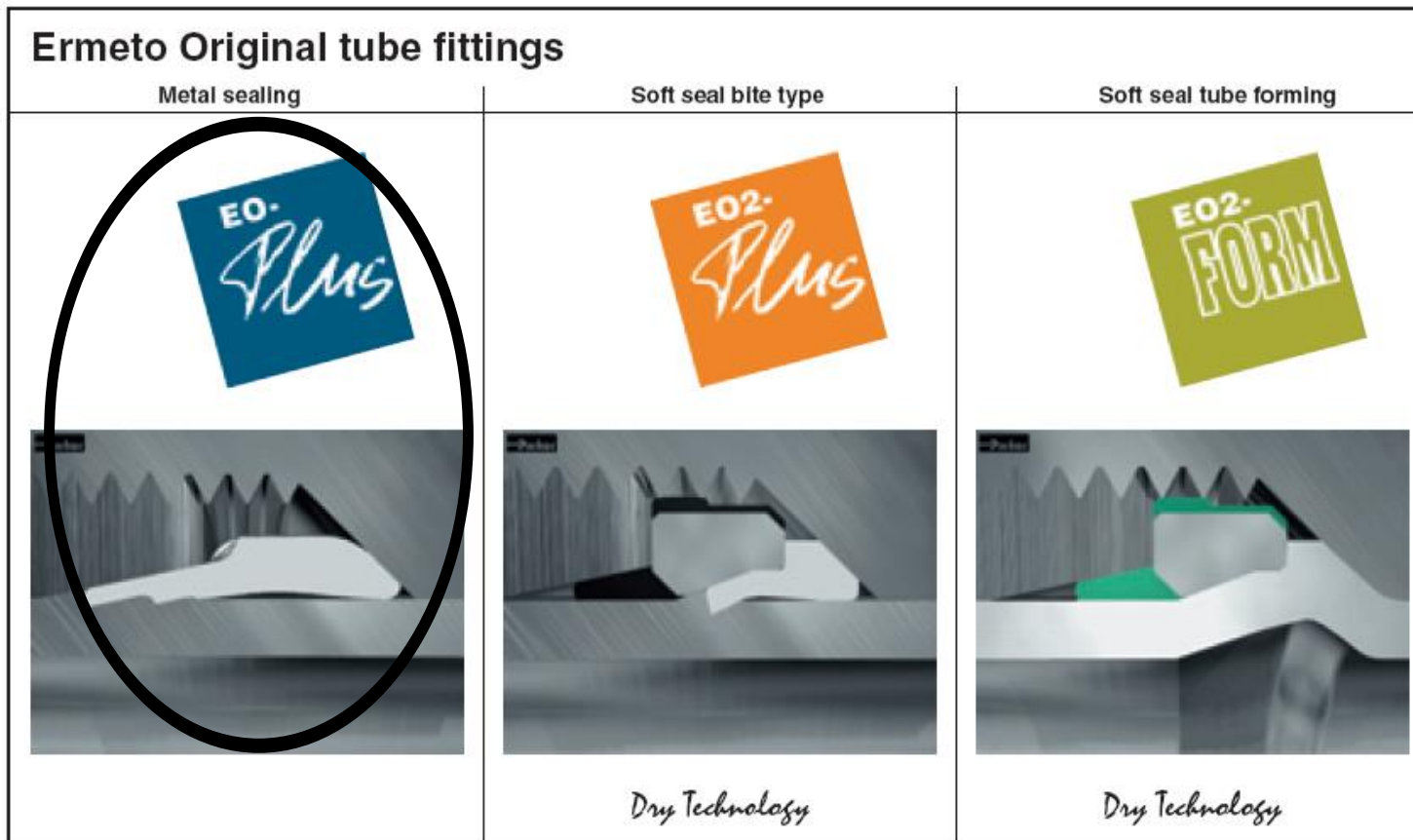
## 二、EO接头

### EO卡套式接头连接方式



## 二、E0接头

- E0 Plus



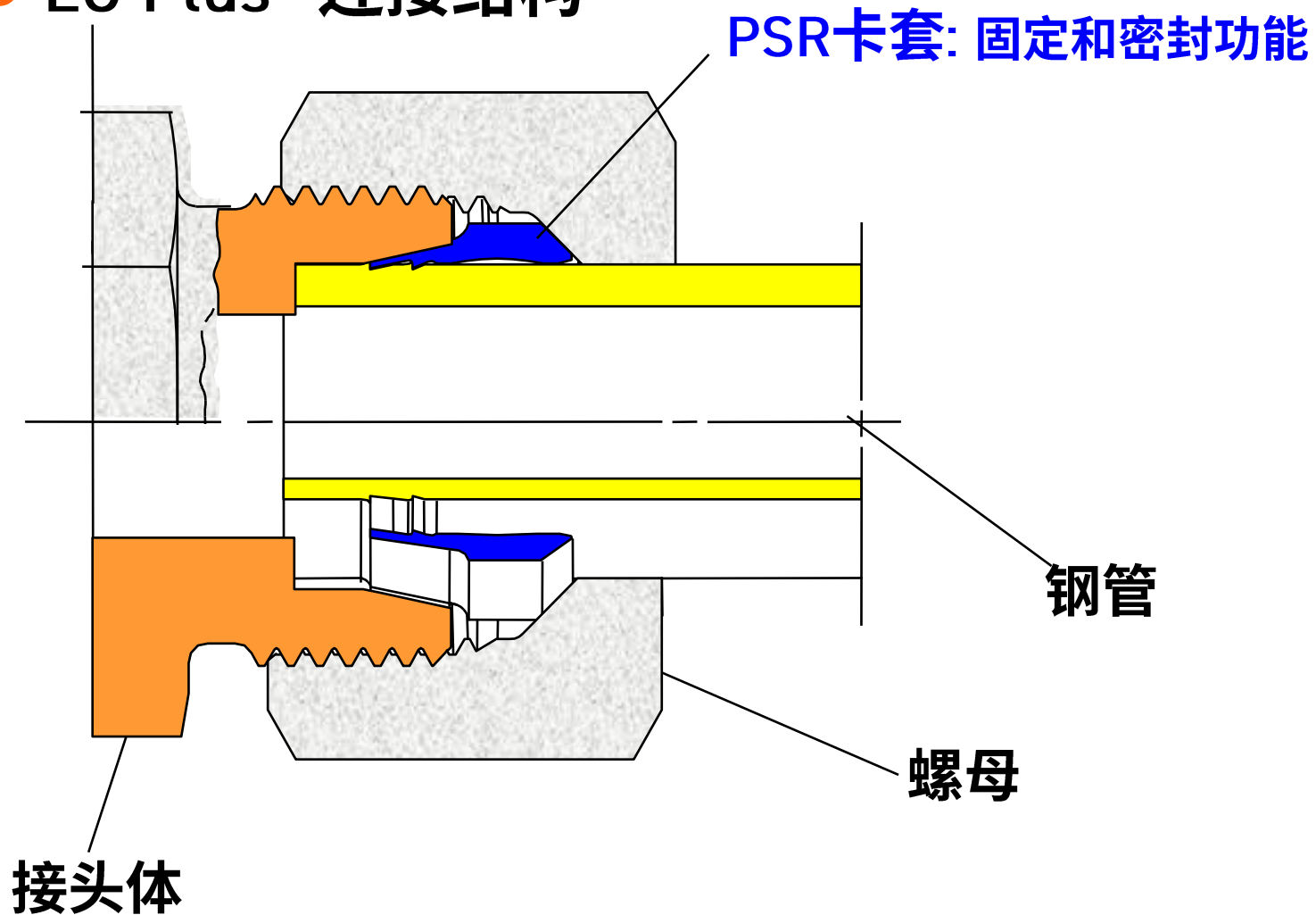
## 二、E0接头

- E0 Plus—工作原理



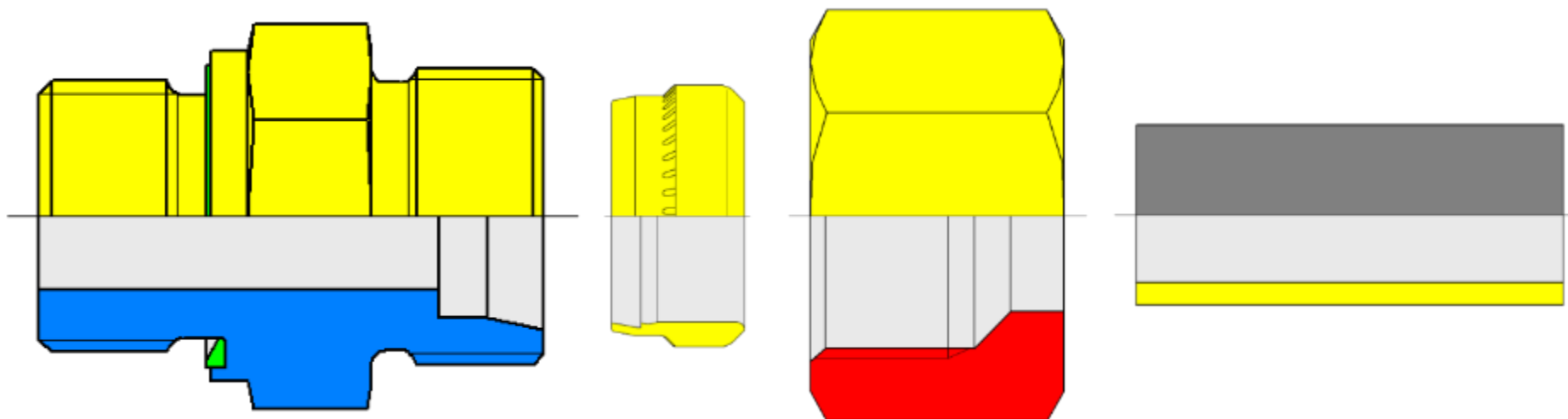
## 二、E0接头

### ● E0 Plus—连接结构



## 二、E0接头

### ● E0 Plus—连接结构及标准



接头体

卡套

螺母

管件

ISO 8434-1

DIN 3861

DIN 3870

DIN EN 10305-4

DIN 2353

ASTM A269

DIN EN 10216-5

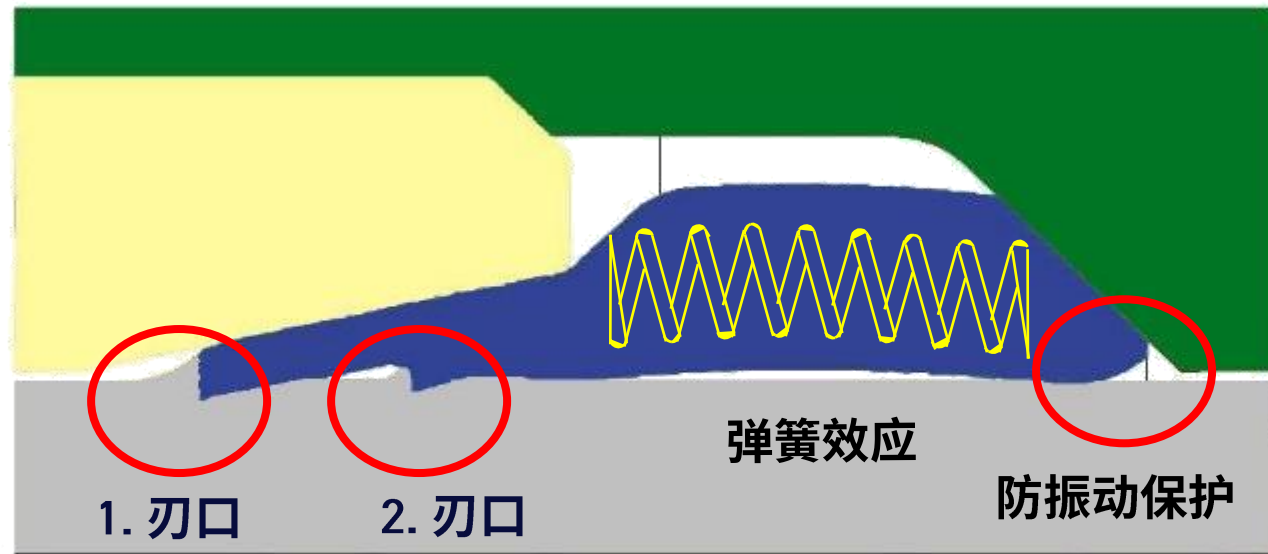


## 二、E0接头



### ● E0 Plus—PSR卡套特点

- 固定功能
- 密封功能
- 抓取功能
- 弹簧效应



- 可吸收来自系统的振动和压力脉冲。
- 可在无需重新拧紧的条件下，确保长时间无泄漏。
- 固定作用和确保无泄漏

## 二、E0接头

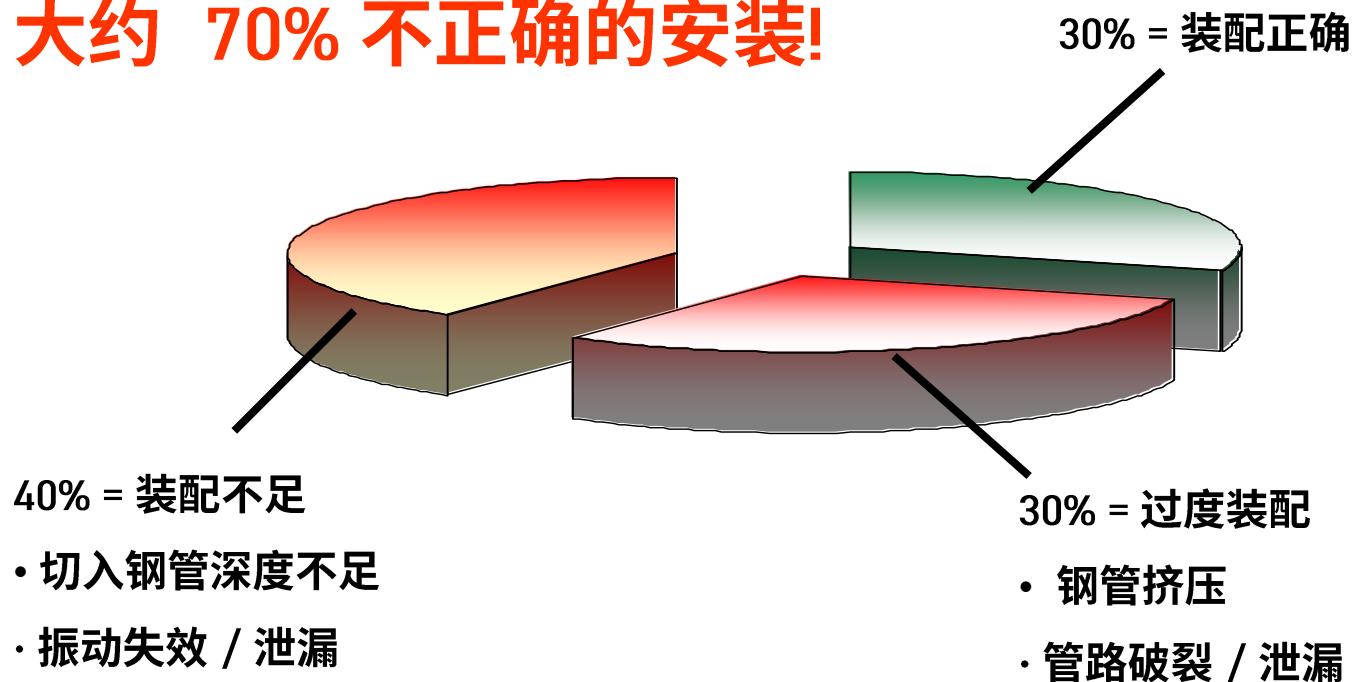


### ● E0 Plus—装配特点

“液压接头泄漏的主要因素是什么？”

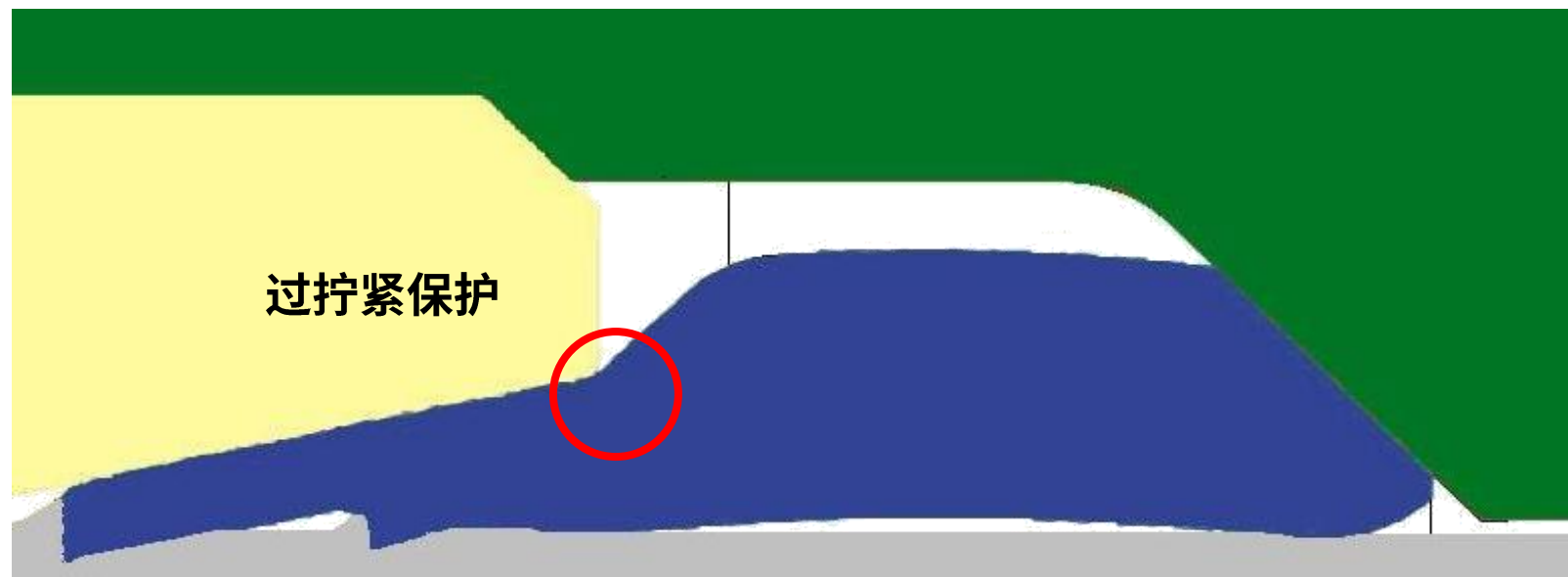
小尺寸容易发生过度装配，而大尺寸容易发生装配不足。

**大约 70% 不正确的安装!**



## 二、E0接头

- E0 Plus—装配特点
- 定位台阶确保装配安全
  - 可提高装配力矩
  - 可防止过度装配



## 二、E0接头

- E0 Plus—装配特点

无定位台阶卡套装配后



- 感觉不到装配力矩增加
- 过度装配危险:
  - 卡套切入钢管太深
  - 锥面扩大

PSR卡套装配后



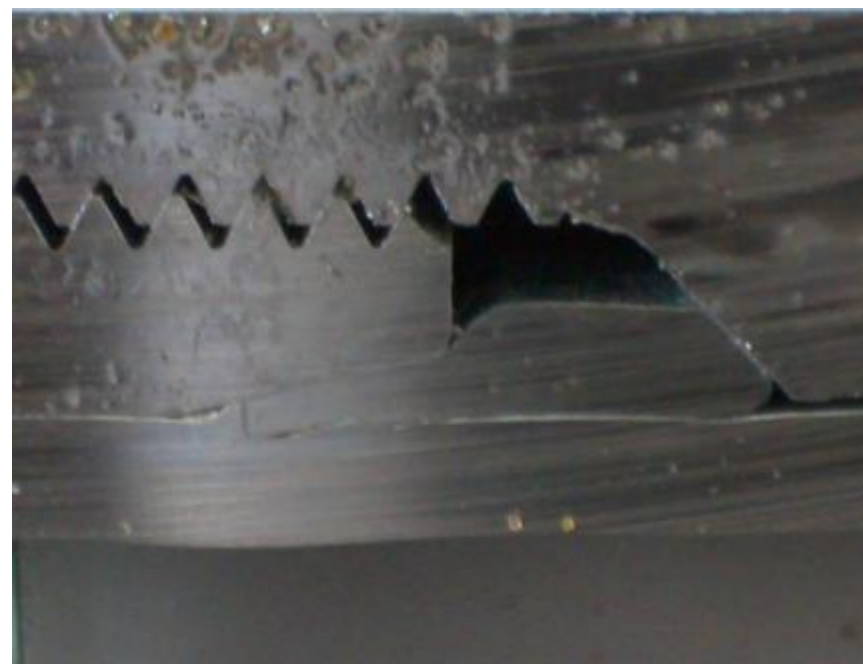
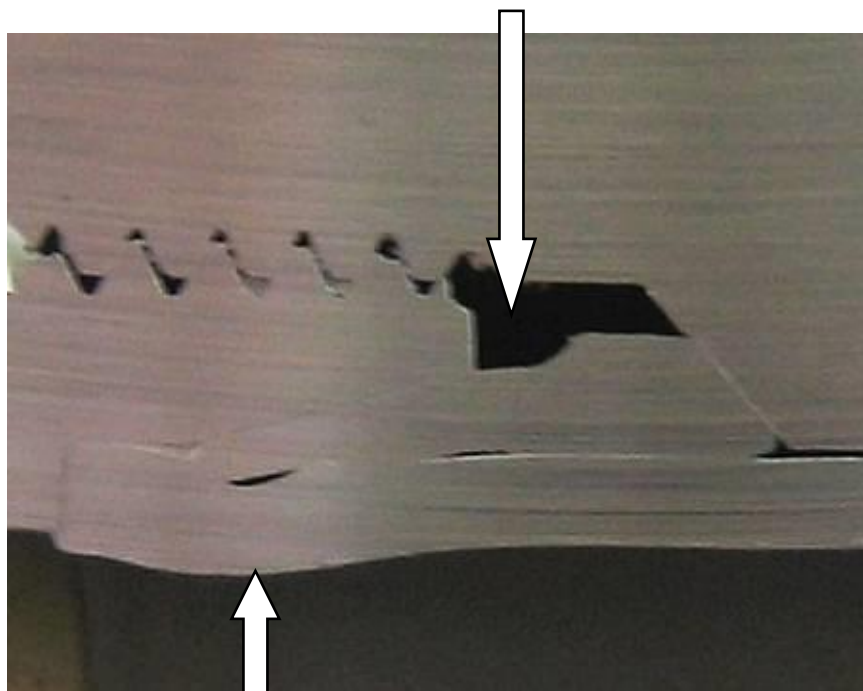
- 力矩激增点明显
- 切入深度保护
- 弯曲应力下具有极佳的强度性能

## 二、E0接头

- E0 Plus—装配特点

无定位环

PSR



过拧紧风险

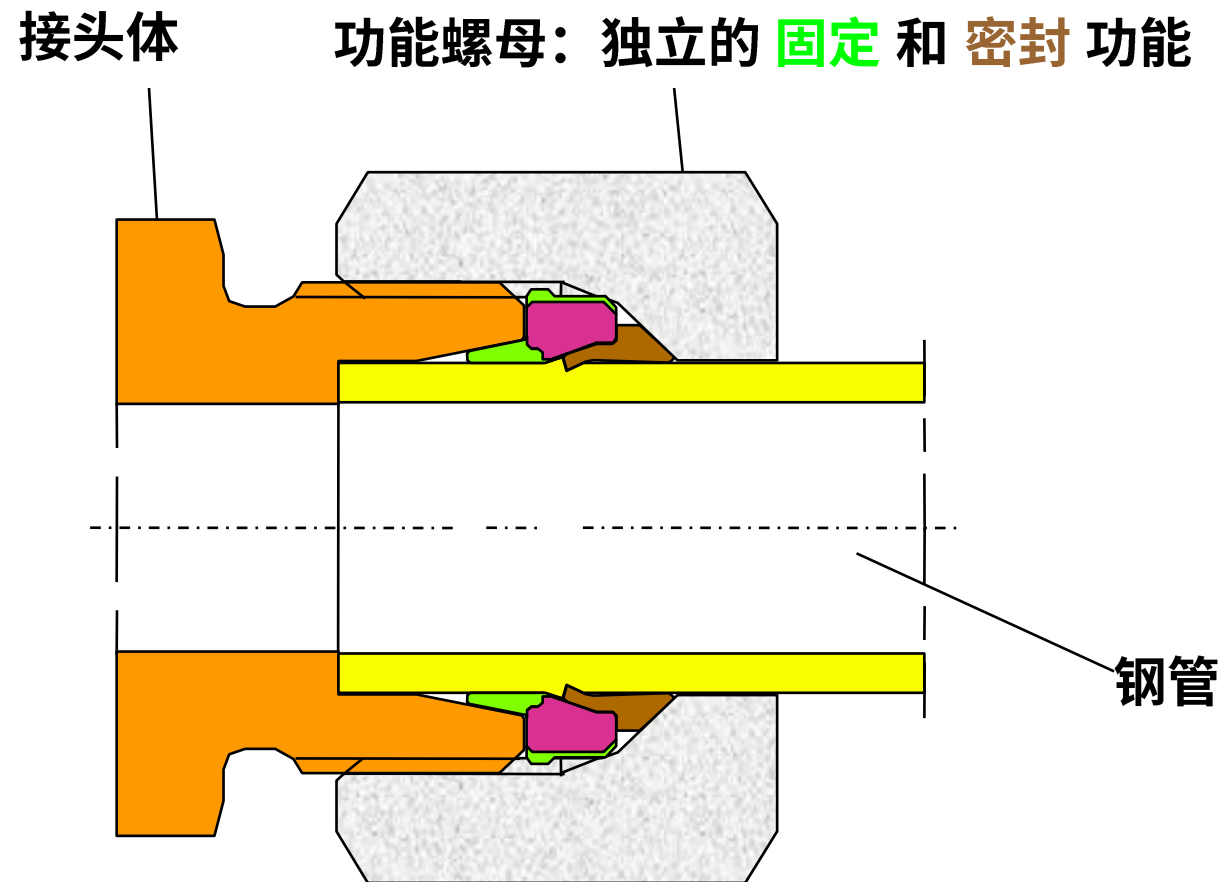
## 二、E0接头

- E02 Plus—工作原理



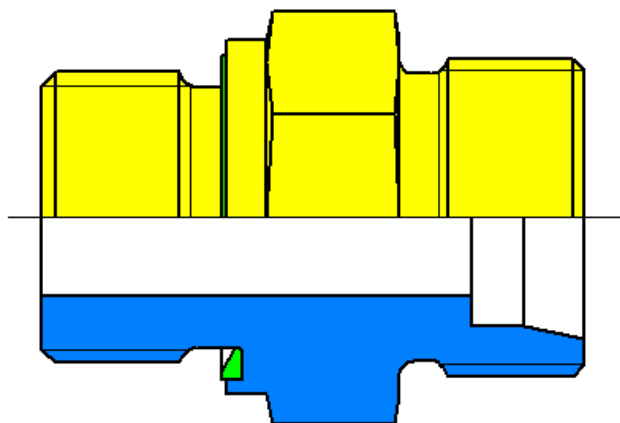
## 二、E0接头

- E02 Plus—连接结构

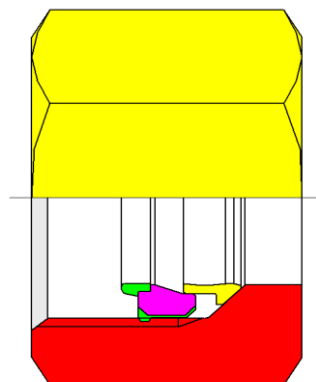


## 二、E0接头

### ● E02 Plus—连接结构



ISO 8434-1/DIN 2353



功能螺母

螺母符合 ISO 8434-1  
+ 预装好的卡套



钢管

DIN EN 10305-4  
ASTM A269  
DIN EN 10216-5

*DryTechnology*



## 二、E0接头

### ● E02 Plus—产品特点

- 密封件和卡套集成在螺母中，因此不会掉落
- 零件不会被遗漏或错误装配
- 减少零件数量
- 不需要焊接，扩口
- 减少装配成本
- 固定的弹性密封件
- 弹簧效应
- 密封可替换



## 二、E0接头

### ● E02 Plus—产品特点

#### E02-Plus弹性密封的 优点

- 避免污垢，划伤及空气的渗透
- 可包容装配不到位
- 可承受振动和脉冲压力
- 弹簧效应:

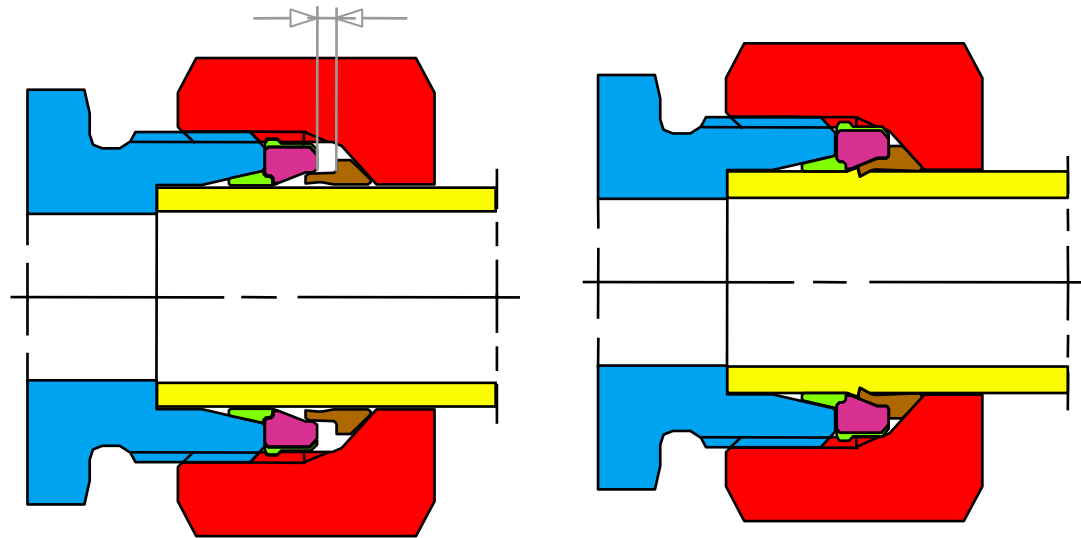
更高的压力可提供更好的密封效果



## 二、E0接头

### ● E02 Plus—装配优点

- 装配可靠性更高: 清晰的定位; 装配力矩增加; 避免卡套拔脱
- 弹性密封确保优良的密封性能和更长的耐用性
- 可靠统一的接头组合, 无混料风险
- 无需重复拧紧
- 有效的切入深度定位
- 可重复安装
- 可直接装配



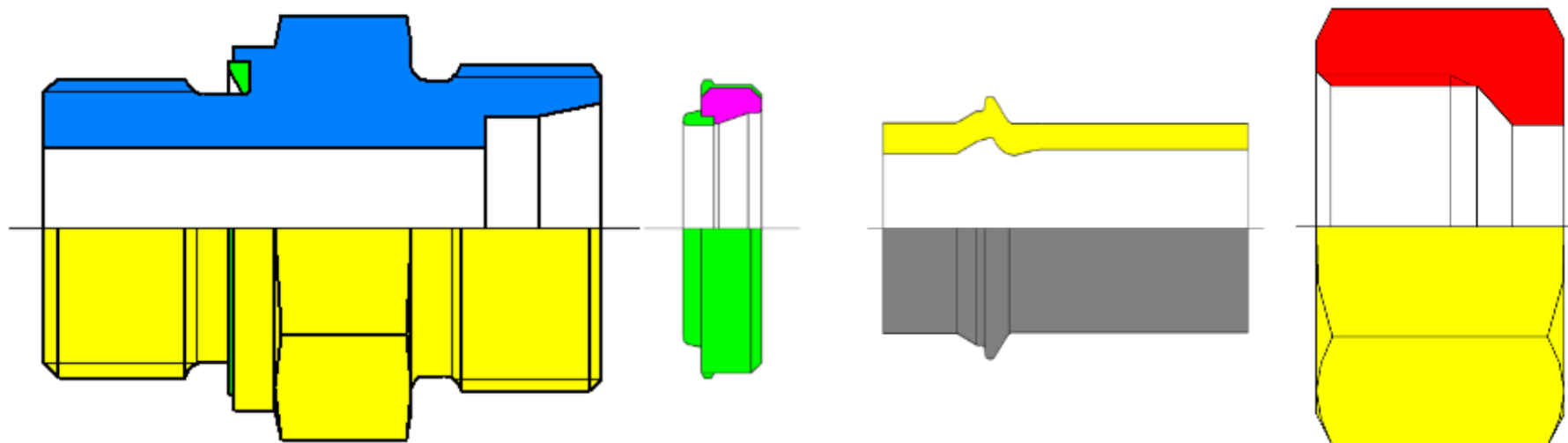
## 二、E0接头

- E02 FORM—工作原理



## 二、E0接头

### ● E02 FORM—接头结构



接头体

DOZ...

钢管

螺母

ISO 8434-1

DIN 2353

DIN EN 10305-4

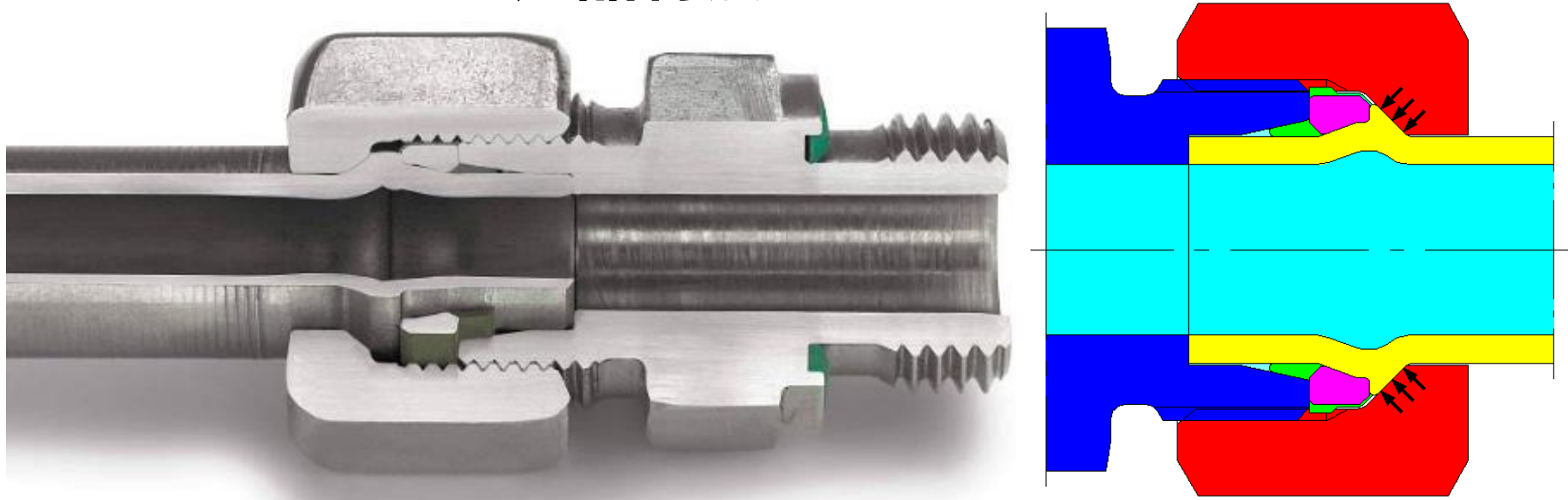
ASTM A269

DIN EN 10216-5

DIN 3870

## 二、E0接头

### ● E02 FORM——产品特点



- 成型连接，不需要焊接
- 装配简便，降低装配成本，失效可能性极低
- 排除了潜在装配错误
- 钢管不会因为过度拧紧而撕裂
- 密封形式与 E02相同;
- 密封件材料 NBR 和 FKM

## 二、E0接头

### ● E02 FORM——装配优点

- 装配更可靠：避免卡套拔脱
- 成型加工简便
- 直接装配简单
- 无装配失效
- 无混料风险：只有一件产品
- 无需重新拧紧
- 可多次重复装配
- 弹性密封确保优良的密封性能和更长的耐用性

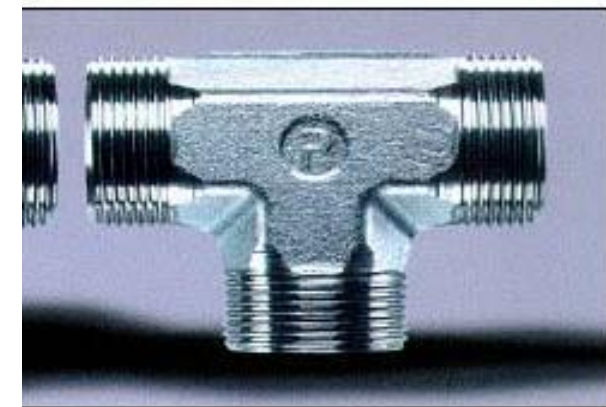


## 二、E0接头

### ● E0 接头回顾



- ✓ 最高可达 800 bar 公称压力 (PN)
- ✓ 装配更可靠，更简便
- ✓ 无六价铬表面（500小时无白锈、耐腐蚀性）

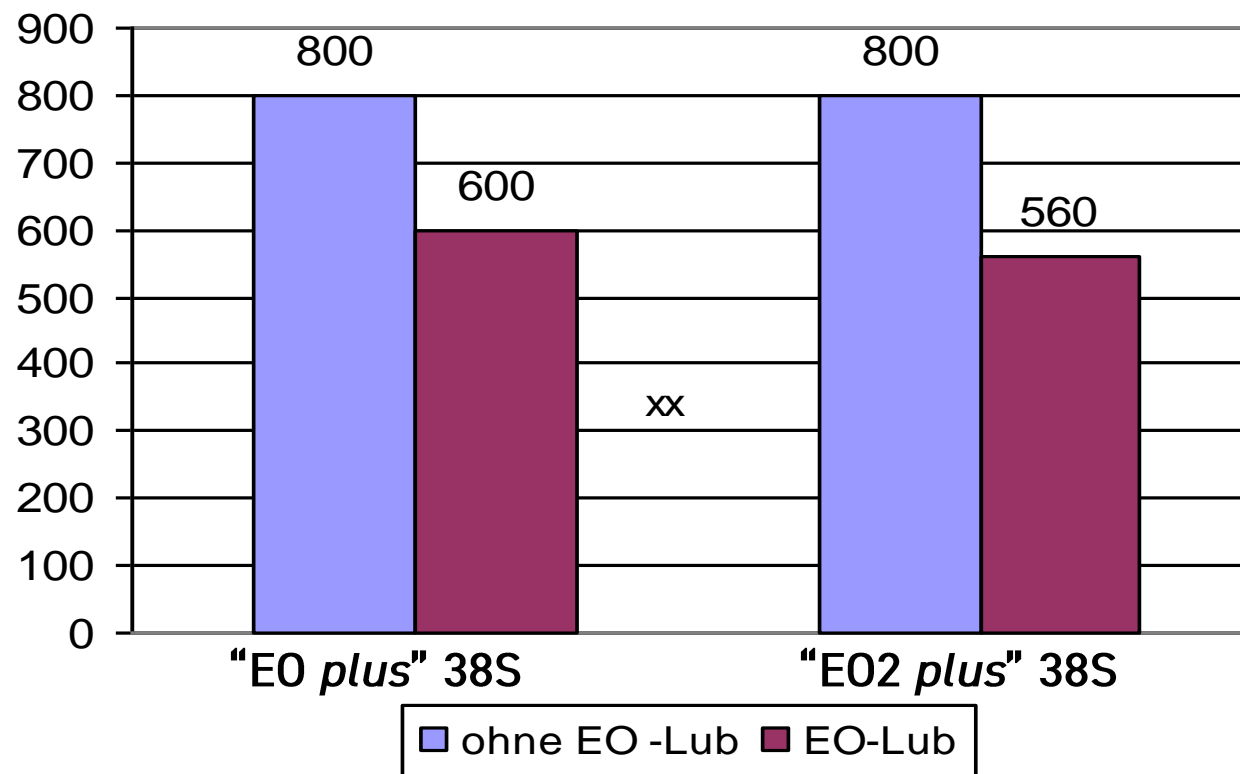




## 二、EO接头

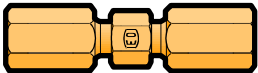
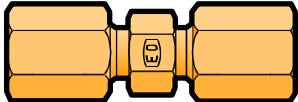
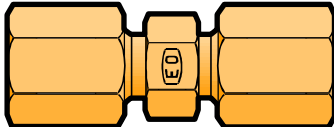

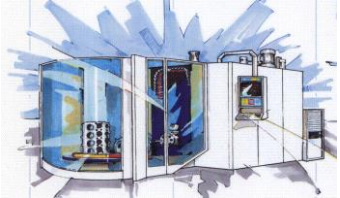

- EO 接头回顾

EO-Lub (润滑), 安装力矩降低 25%



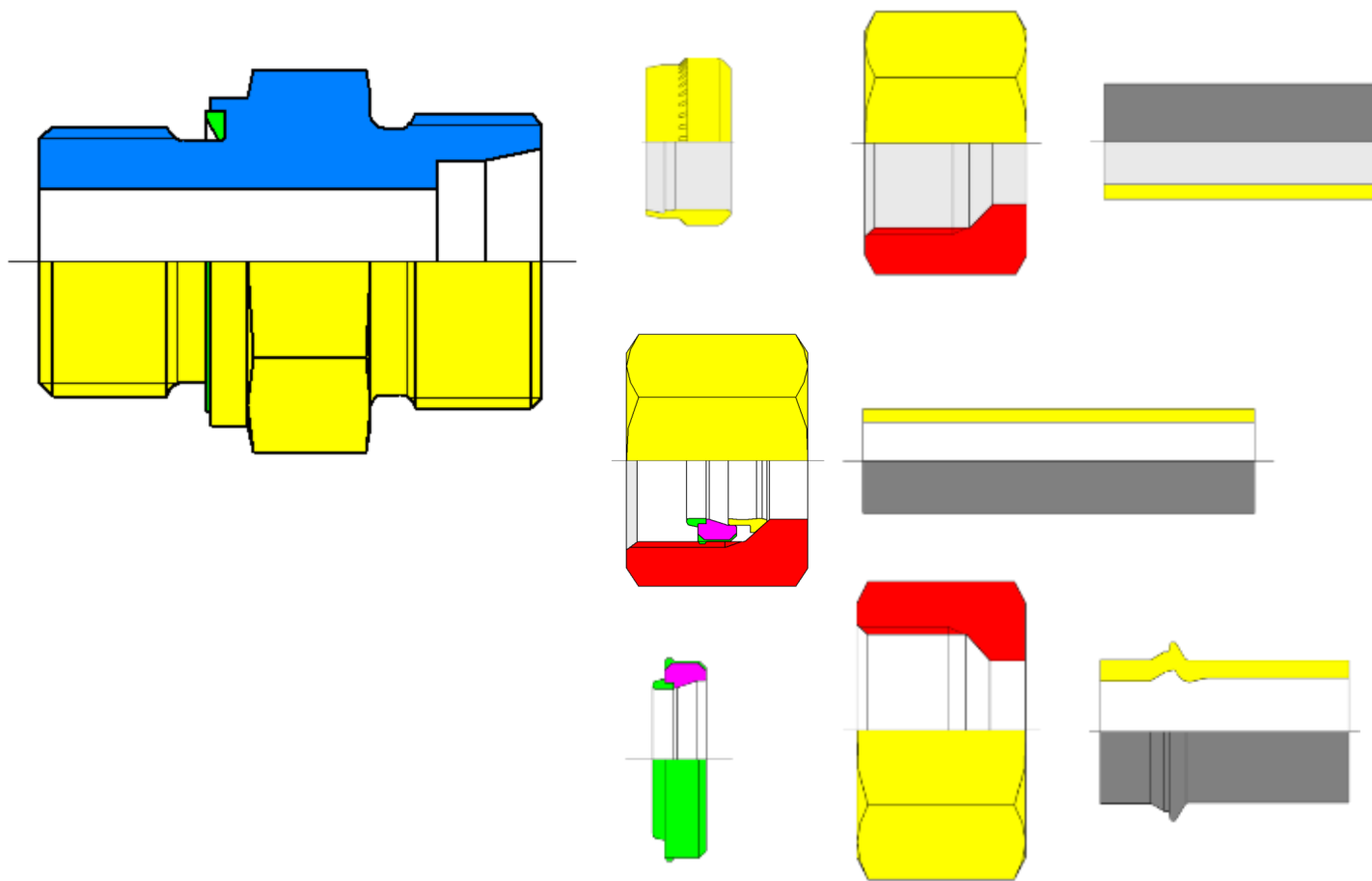
## 二、E0接头

### ● E0 接头回顾

压力系列	LL	L	S
			
公称压力 PN	Max. 100 bar	160~500 bar	315~800 bar
应用实例	润滑系统	机床 农用机械 卡车	液压压机 注塑机械 造船 工程机械
			

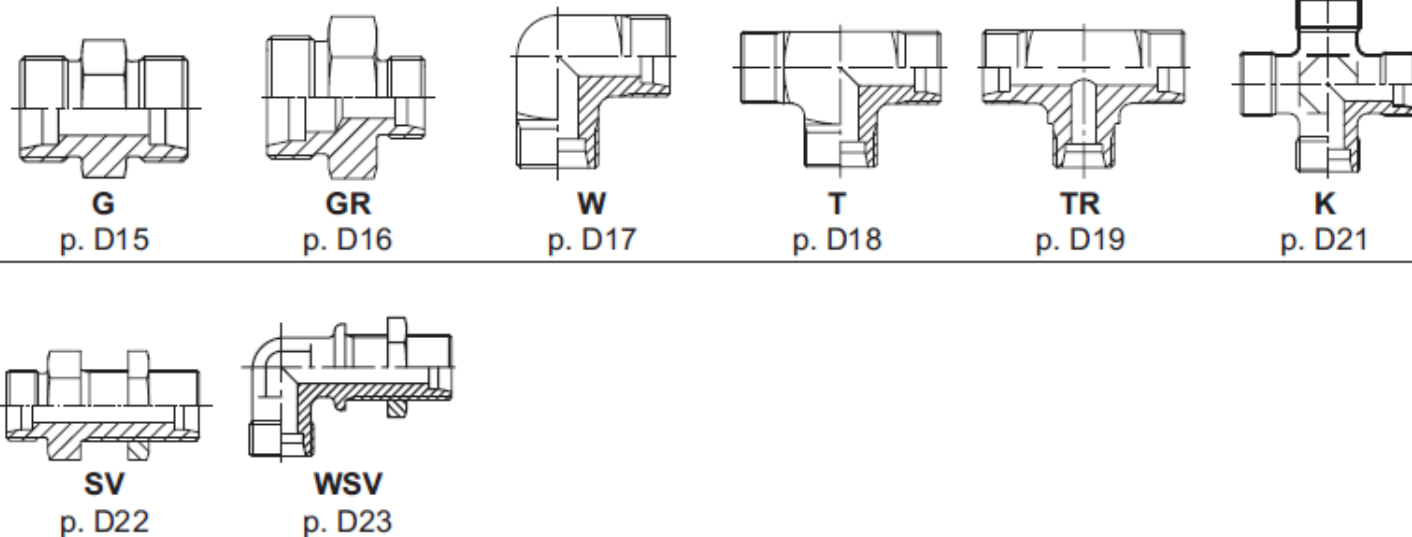
## 二、E0接头

- 常见E0接头编码规则



# ●EO接头类型举例:

管与管连接

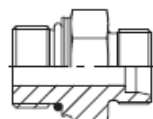


管 / 管连接

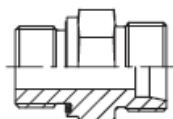
<p>G B-94</p> <p>24°锥 - 直通接头</p>	<p>GR B-95</p> <p>24°锥 - 直通变径</p>	<p>W B-96</p> <p>24°锥 - 90°弯接头</p>	<p>T B-97</p> <p>24°锥 - 三通接头</p>	<p>TR B-98</p> <p>24°锥 - 三通变径</p>	<p>K B-100</p> <p>24°锥 - 四通接头</p>
<p>SV B-101</p> <p>24°锥 - 隔板直通</p>	<p>WSV B-102</p> <p>24°锥 - 隔板弯头</p>				

# ●EO接头类型举例:

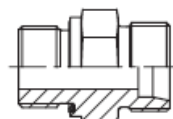
油口连接



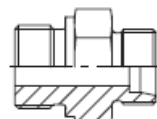
**GEO**  
p. D45



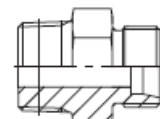
**GE-M-ED**  
p. D46



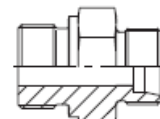
**GE-R-ED**  
p. D47



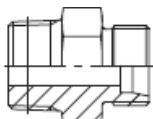
**GE-R**  
p. D49



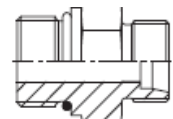
**GE-R(KEG)**  
p. D51



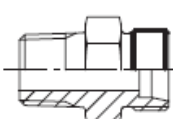
**GE-M**  
p. D52



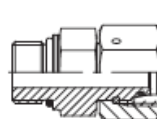
**GE-M(KEG)**  
p. D53



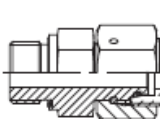
**GE-UNF/UN**  
p. D54



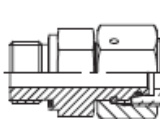
**GE-NPT**  
p. D55



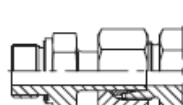
**EGEO**  
p. D57



**EGE-M-ED**  
p. D58



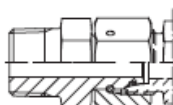
**EGE-R-ED**  
p. D59



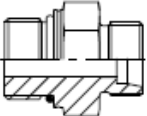
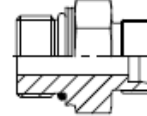
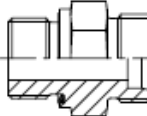
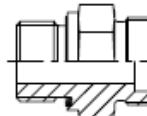
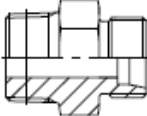
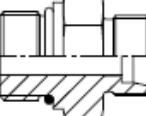
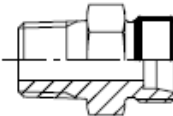
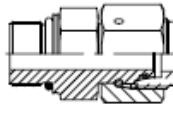
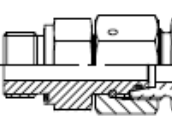
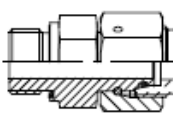
**EVGE-M-ED**  
p. D60



**EVGE-R-ED**  
p. D61



**EGE-NPT**  
p. D62

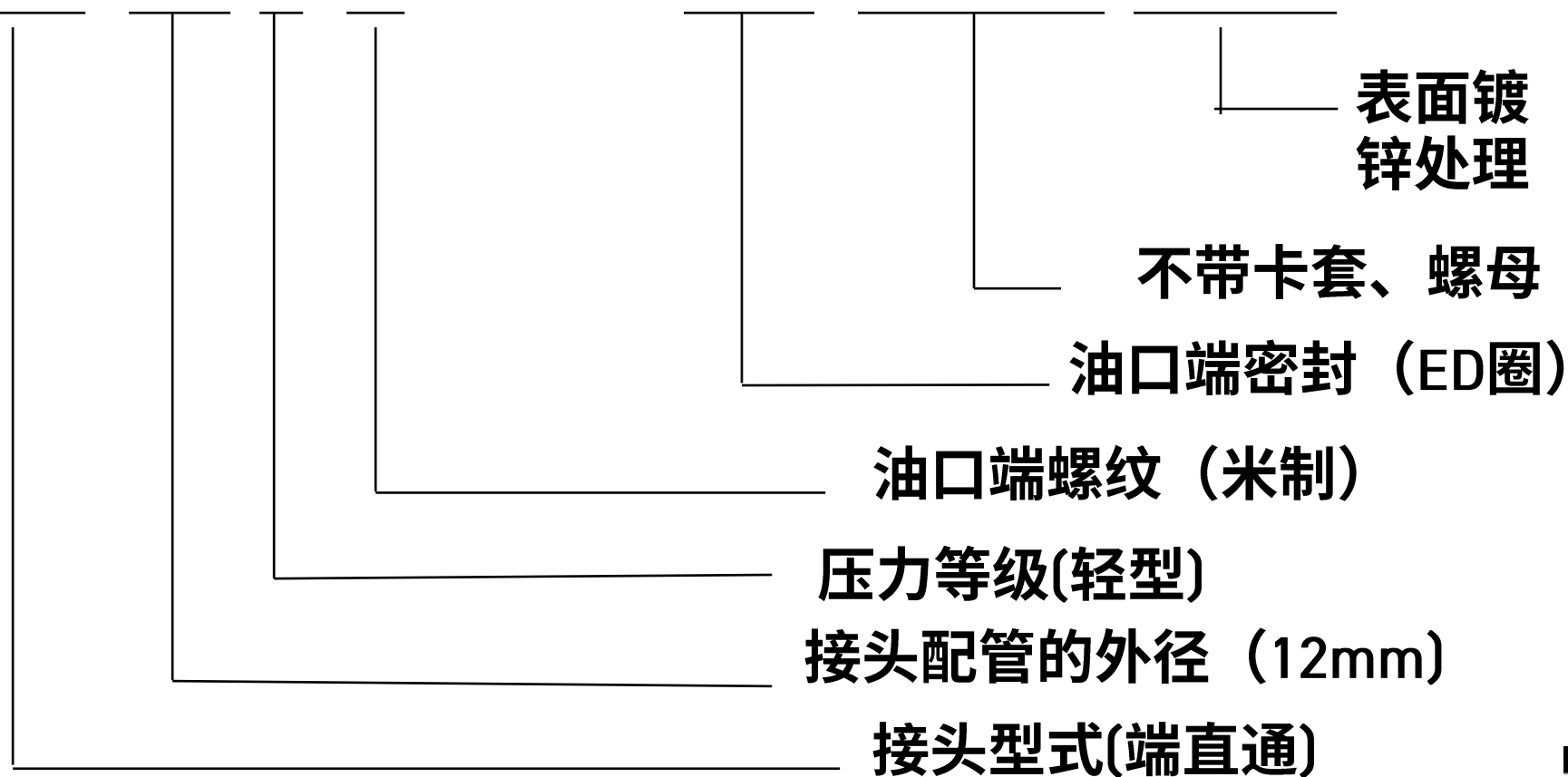
<p>GEO-M B-115</p>  <p>公制螺纹 / 24°锥 端直通接头</p>	<p>GEO-R B-116</p>  <p>BSPB 螺纹 / 24°锥 端直通接头</p>	<p>GE-M-ED B-117</p>  <p>公制螺纹 / 24°锥 端直通接头</p>	<p>GE-R-ED B-118</p>  <p>BSPB 螺纹 / 24°锥 端直通接头</p>	<p>GE-R(KEG) B-120</p>  <p>BSPT 螺纹 / 24°锥 端直通接头</p>	<p>GE-UNF/UN B-121</p>  <p>美制 UN 螺纹 / 24°锥 端直通接头</p>
<p>GE-NPT B-122</p>  <p>NPT 螺纹 / 24°锥 端直通接头</p>	<p>EGEO B-124</p>  <p>公制螺纹 / 旋转螺母 端直通组合接头</p>	<p>EGE-M-ED B-125</p>  <p>公制螺纹 / 旋转螺母 端直通组合接头</p>	<p>EGE-R-ED B-126</p>  <p>BSPB 螺纹 / 旋转螺母 端直通组合接头</p>		

## 二、EO接头

- 常见EO接头体编码规则

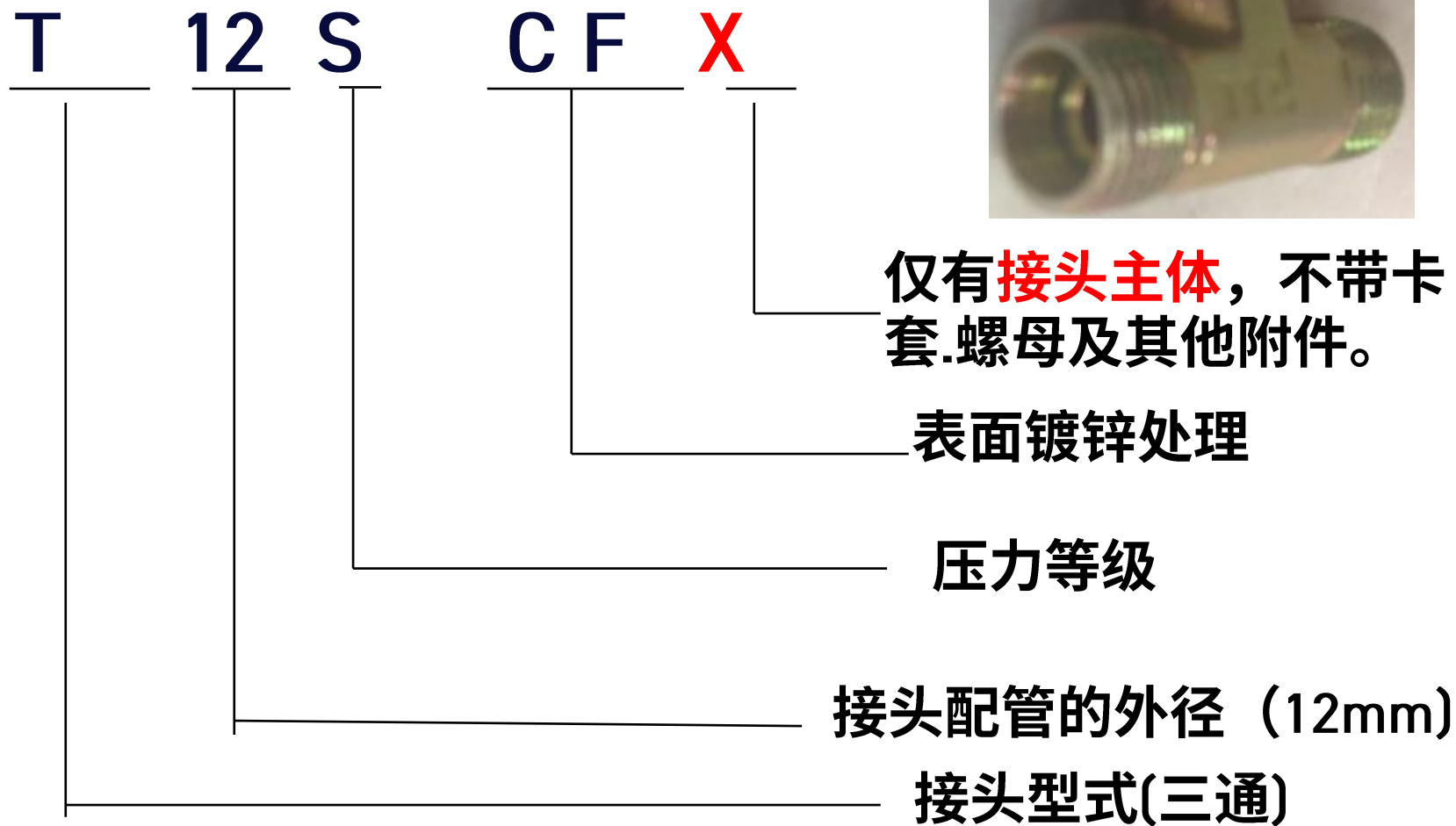


**G E 12 L M22\*1.5 E D O M D C F**



## 二、E0接头

- 常见E0接头体编码规则



## 二、E0接头

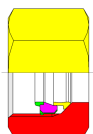
- 常见E0接头编码规则

GE16ZSREDCF

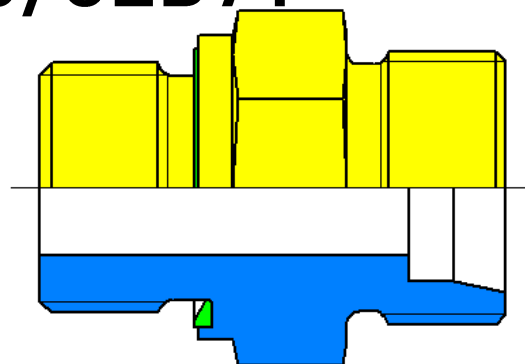
Z表示配套功能螺母

不写表示配套螺母、卡套

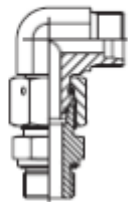
配套子件:



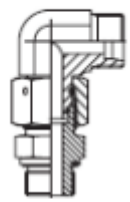
GE18LR3/8ED71



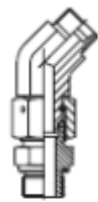




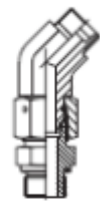
**EW-M-ED**



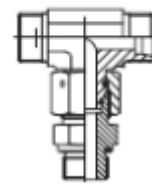
**EW-R-ED**



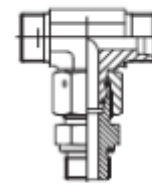
**EV-M-ED**



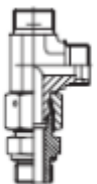
**EV-R-ED**



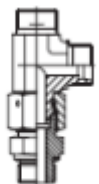
**ET-M-ED**



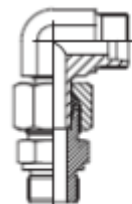
**ET-R-ED**



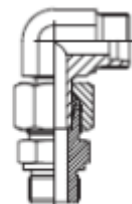
**EL-M-ED**



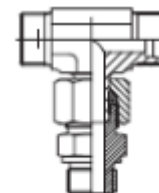
**EL-R-ED**



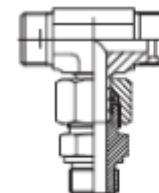
**EVW-M**



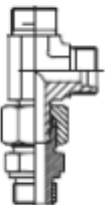
**EVW-R**



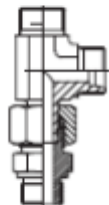
**EVT-M**



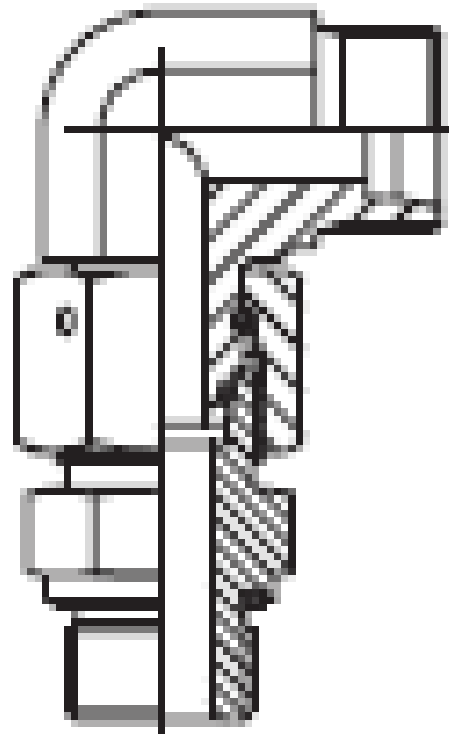
**EVT-R**



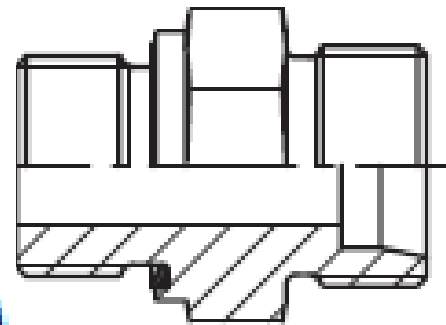
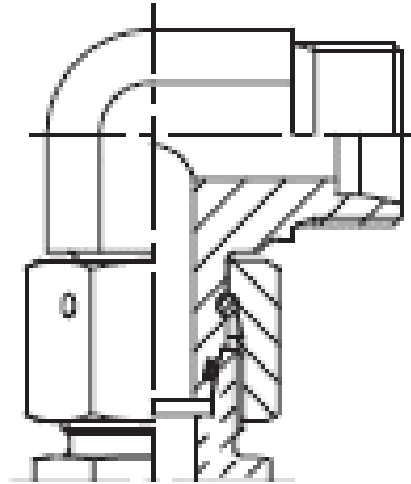
**EVL-M**



**EVL-R**



**EW-M-ED**

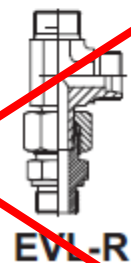
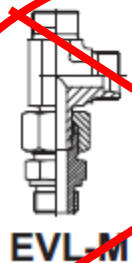
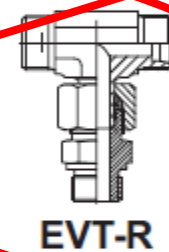
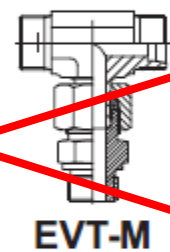
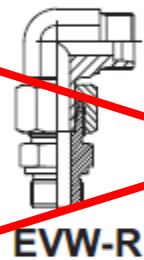
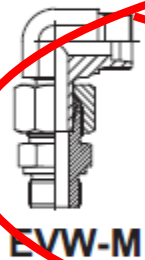
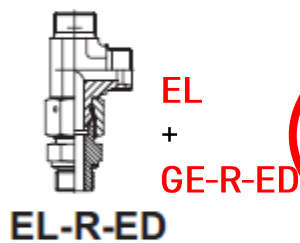
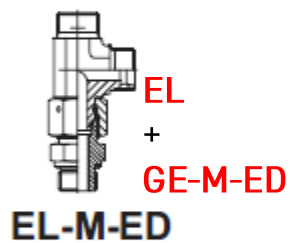
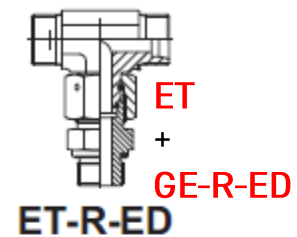
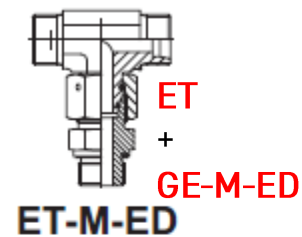
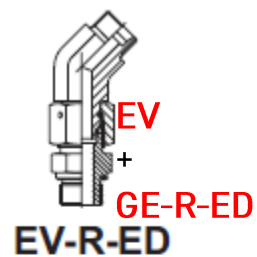
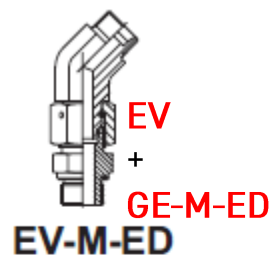
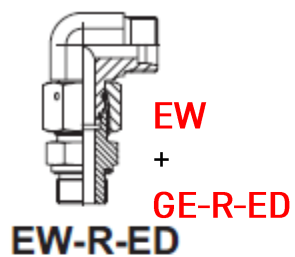
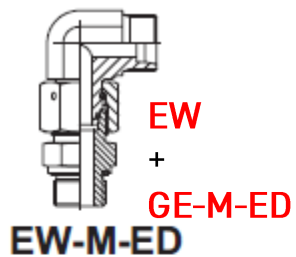


**GE-M-ED**

**EW**

**+**

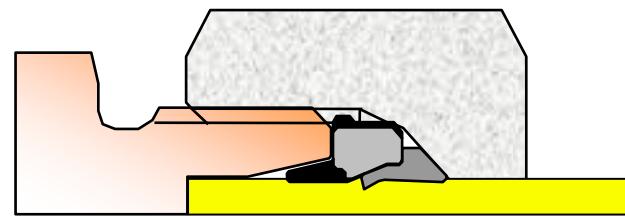
**GE-M-ED**



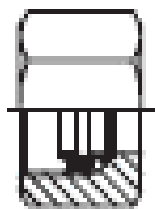
不推荐

## 二、E0接头

### ● 常见E02功能螺母编码规则



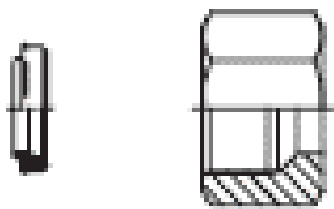
接头体	碳钢	碳钢	<u>不锈钢</u>	<u>不锈钢</u>
钢管	碳钢	碳钢	<u>不锈钢</u>	<u>不锈钢</u>
<u>功能螺母组件:</u>	FM10LCF	FM10LVITCF	FM10L71	FM10LSSA
螺母 DIN 3870	碳钢	碳钢	<u>不锈钢</u>	<u>碳钢</u>
密封圈 (DOZ)	<u>碳钢: NBR</u>	<u>碳钢: FKM</u>	不锈钢: FKM	不锈钢: NBR
卡套	碳钢	碳钢	<u>不锈钢</u>	<u>不锈钢</u>



FM

B88(碳钢)  
B89(不锈钢)

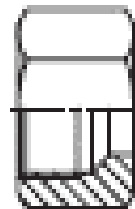
E02接头配  
套功能螺母



FORM

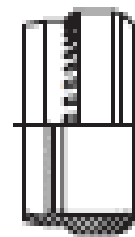
B90(碳钢)  
B91(不锈钢)

E02-FORM接头  
配套螺母



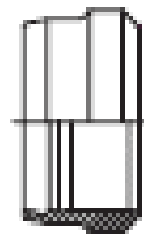
M

B92



PSR

B93



DPR

B93

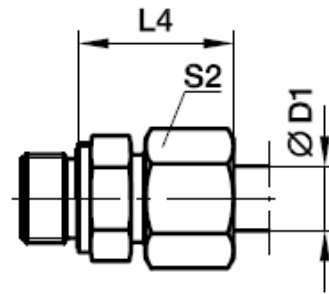
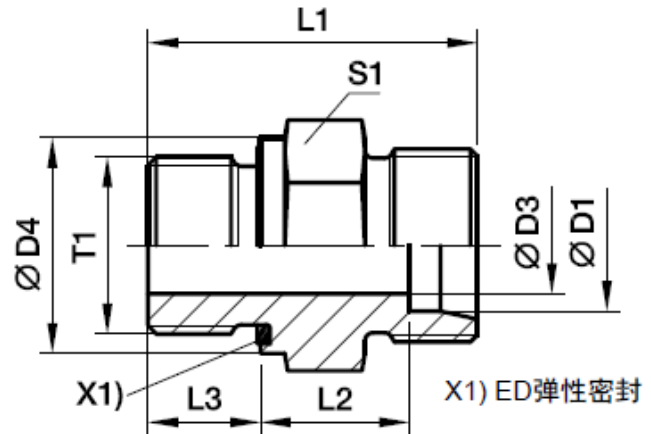
E0接头配套选用的螺  
母及卡套


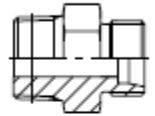
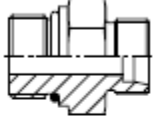
系列	钢管 外径	T1	L1	S1	重量 g/件	FM...71 不锈钢 FKM密封件	FM...NBR71 不锈钢 NBR密封件	FM...SSA 碳钢, 无六价铬镀锌 不锈钢卡套 NBR密封件	FM...VITSSA 碳钢, 无六价铬镀锌 不锈钢卡套 VIT密封件	PN (bar)
	D1					订货号	订货号	订货号	订货号	
L	06	M 12×1.5	14.5	14	12	FM06L71	FM06LNBR71	FM06LSSA	FM06LVITSSA	315
	08	M 14×1.5	14.5	17	17	FM08L71	FM08LNBR71	FM08LSSA	FM08LVITSSA	315
	10	M 16×1.5	15.5	19	22	FM10L71	FM10LNBR71	FM10LSSA	FM10LVITSSA	315
	12	M 18×1.5	15.5	22	30	FM12L71	FM12LNBR71	FM12LSSA	FM12LVITSSA	315
	15	M 22×1.5	17.0	27	48	FM15L71	FM15LNBR71	FM15LSSA	FM15LVITSSA	315
	18	M 26×1.5	18.0	32	70	FM18L71	FM18LNBR71	FM18LSSA	FM18LVITSSA	315

## 二、E0接头

### ● 常见E0接头编码规则

油口端外螺纹M22\*1.5, ED密封, 轻系列, 管末端外径15mm的直通接头, 材质为碳钢, 请写出接头体型号:

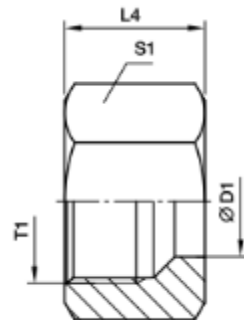


B-118	GE-R(KEG) B-120	GE-UNF/UN B-121	)CF
			
4°锥	BSPT 螺纹 / 24°锥 端直通接头	美制 UN 螺纹 / 24°锥 端直通接头	
R-126			

系列	钢管 外径	D1	T1	D3	D4	L1	L2	L3	L4	S1	S2	重量 g/件	订货号	PN (bar)		
														CF	71	SS
L	12	M 18×1.5	10	24	31.5	12.5	12	27	24	22	47	GE12LM18X1.5EDOMD	400	315	315	
	12	M 22×1.5	10	27	35.0	14.0	14	29	27	22	75	GE12LM22X1.5EDOMD	400	315	315	
	15	M 18×1.5	11	24	32.5	13.5	12	29	24	27	51	GE15LMEDOMD	400	315	315	
	15	M 16×1.5	9	22	32.0	13.0	12	28	24	27	64	GE15LM16X1.5EDOMD	400	315	315	
	15	M 22×1.5	12	27	36.0	15.0	14	30	27	27	77	GE15LM22X1.5EDOMD	400	315	315	

# 二、EO接头

M 螺母  
EO 24°锥



螺母: M

系列	钢管外径 D1	T1	L4	S1	重量 g/件	订货号	PN(bar)	
							CF	71
L	06	M 12×1.5	14.5	14	10	M06L	500	315
	08	M 14×1.5	14.5	17	15	M08L	500	315
	10	M 16×1.5	15.5	19	18	M10L	500	315
	12	M 18×1.5	15.5	22	25	M12L	400	315
	15	M 22×1.5	17.0	27	42	M15L	400	315
	18	M 26×1.5	18.0	32	62	M18L	400	315
	22	M 30×2.0	20.0	36	82	M22L	250	160
	28	M 36×2.0	21.0	41	89	M28L	250	160
	35	M 45×2.0	24.0	50	137	M35L	250	160
	42	M 52×2.0	24.0	60	216	M42L	250	160
S	06	M 14×1.5	16.5	17	17	M06S	800	630
	08	M 16×1.5	16.5	19	20	M08S	800	630
	10	M 18×1.5	17.5	22	31	M10S	800	630
	12	M 20×1.5	17.5	24	34	M12S	630	630
	16	M 24×1.5	20.5	30	66	M16S	630	400
	20	M 30×2.0	24.0	36	102	M20S	420	400
	25	M 36×2.0	27.0	46	202	M25S	420	400
	30	M 42×2.0	29.0	50	219	M30S	420	400
		38	M 52×2.0	32.5	60	339	M38S	420

订货示例:

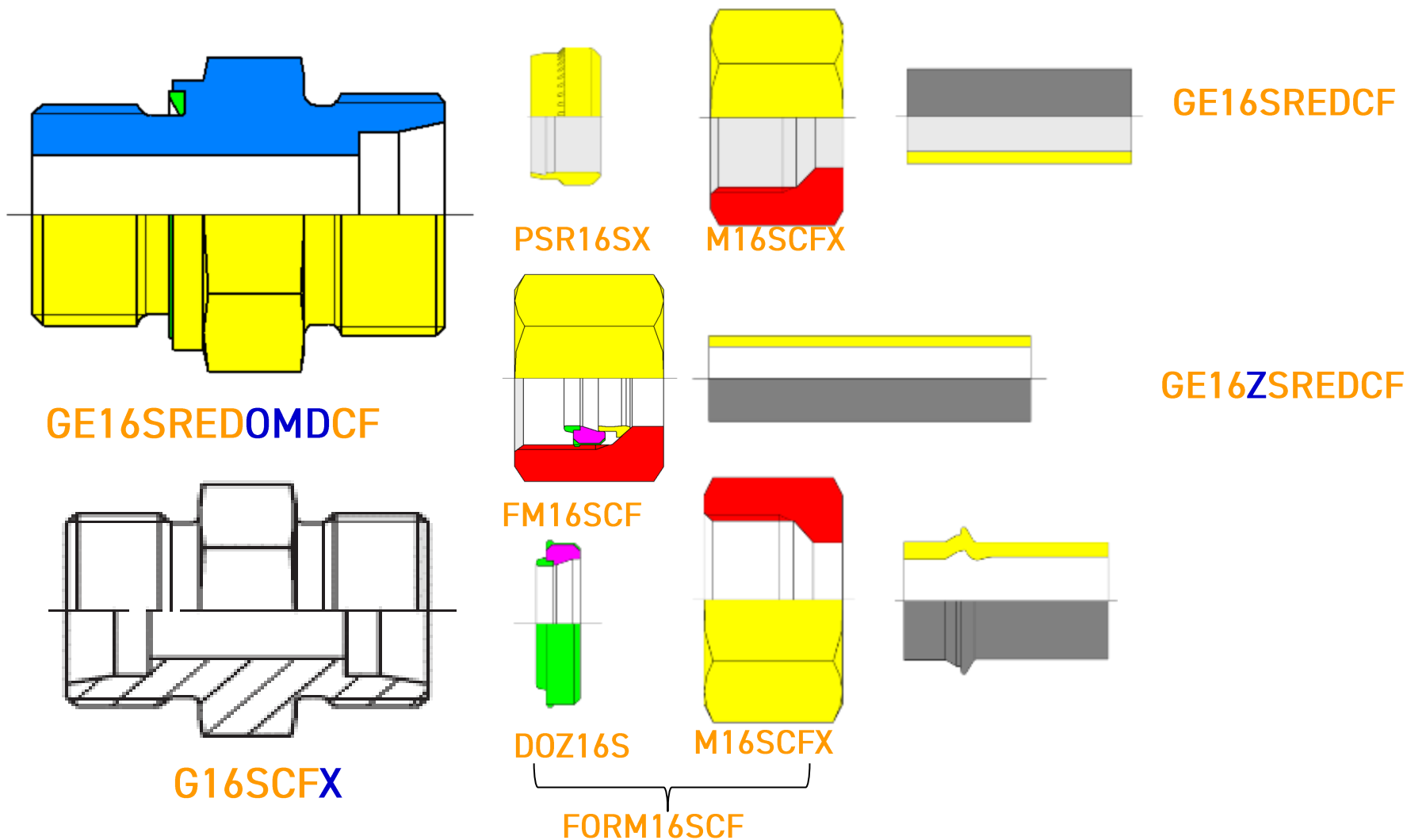
碳钢螺母: M12LCFX

不锈钢螺母: M12LEODURX



## 二、E0接头

### ● 常见E0接头编码规则





## 二、E0接头

### ● E0、E02接头的装配

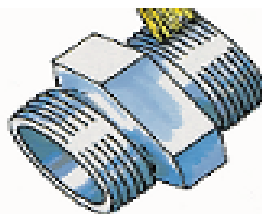
-采用VOMO(4100样本E4页)预装体预装(B36、40页)

- 每装**50个**卡套要对预装体检查一次
- 不锈钢预装前**必须润滑**
- 大于**25mm**的建议用机器预装

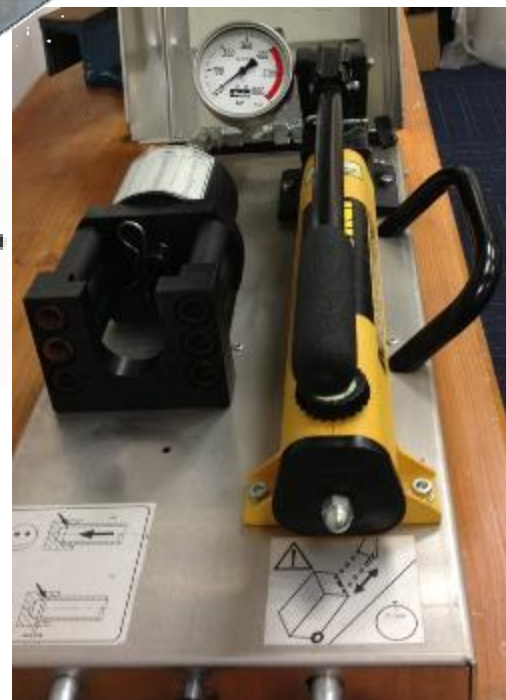


-采用接头体直接预装(B37、41页)

- **一个**接头体只能进行一次预装
- 30-42的必须在台钳上进行
- **不能用于不锈钢**接头体预装



-采用预装机预装(B35、39页)



## 二、E0接头

### ● E0 接头的装配——采用预装机预装

- 第一步. 准备好需要预装的钢管
- 第二步. 根据钢管尺寸和系列选择相应的预装模具(MOK)和挡板(GHP)
- 
- 注意: 每次预装前, 必须润滑预装模具Mok.



## 二、EO接头

- EO 接头的装配——采用预装机预装



第三步，将螺母和EO卡套按照正确的方向套在钢管上

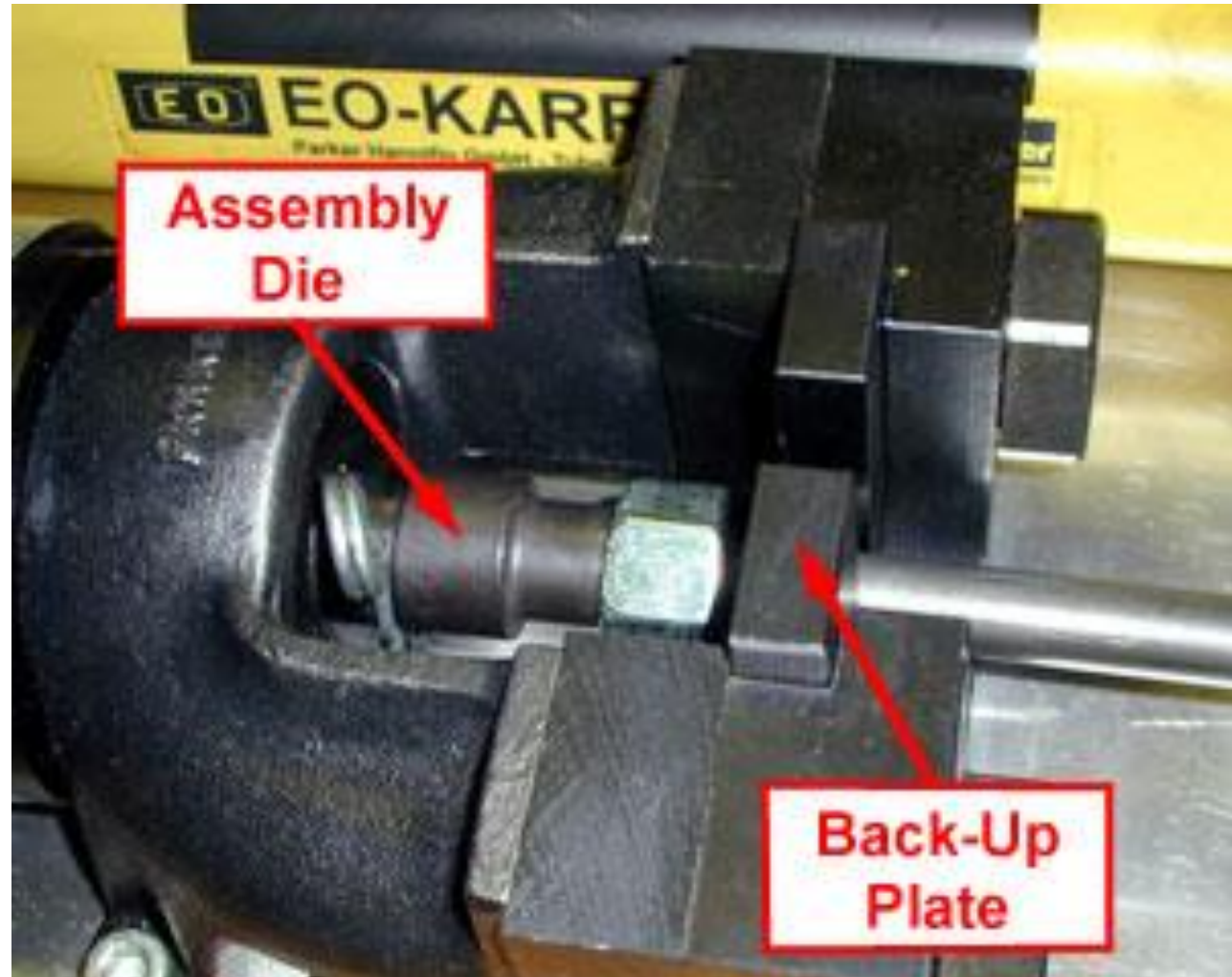


第三步，将EO2功能螺母按照正确的方向套在钢管上

## 二、EO接头

- EO 接头的装配——采用预装机预装

- 第四步，将带着螺母和卡套的钢管插入预装模内，并且螺母和卡套在预装模和挡板之间。





## 二、E0接头

- E0 接头的装配——采用预装机预装
- 第五，左手按住钢管，并保持钢管插入预装模内，右手将卸压阀关闭，然后右手按住手柄加压



## 二、E0接头

### ● E0 接头的装配——采用预装机预装

- 第六步，按住手柄，查看压力表的数值，直至达到钢管所对应的压力值。
- 注意：不要将压力到达红色区域，也就是压力超过400BAR的情况，否则会使设备损坏。



## 二、E0接头

- E0 接头的装配——采用预装机预装

- 第七步，松开卸压阀，使油缸退回。
- 第八步，油缸退回后，拧紧卸压阀



## 二、EO接头

- EO 接头的装配——采用预装机预装



- 第九步，将预装好的钢管从设备中取出。
- 第十步，检查预装效果