KUKA机器人机械篇

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完整的KUKA机器人系统组成

KUKA 机器人
(e.g. KR 180)

KUKA 控制面板
(KCP)

KUKA 机器人控制柜
（ *KR C2* ）

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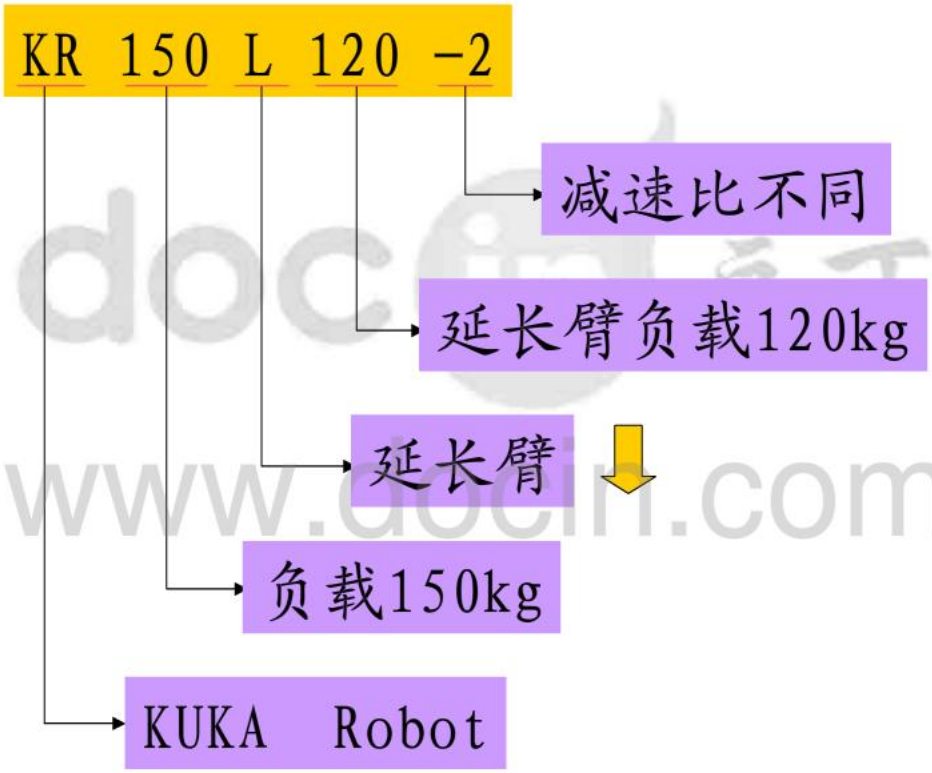
KUKA机器人型号



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工作范围

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说明:

1、KR***是标配，后面的L120-2则不是。如34线的机器人型号是KR120-2P2000。

2、负载是指TCP点承受能力，150kg指6轴中心点处承受能力；而120kg则增加延长臂后新的TCP点处承受能力（力矩增大）。

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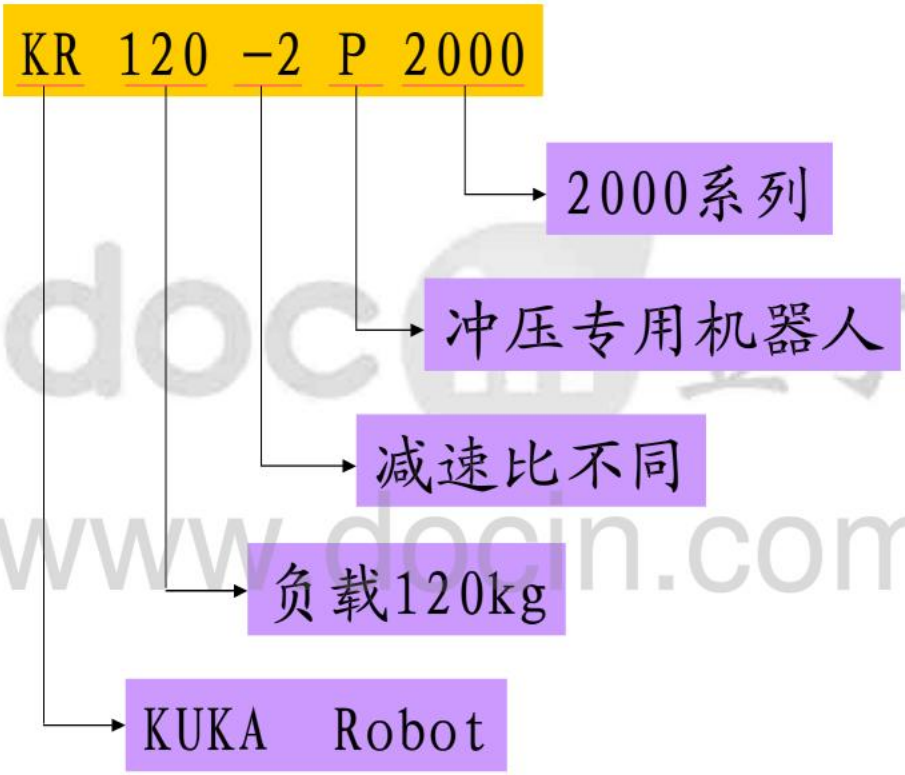

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KUKA机器人结构

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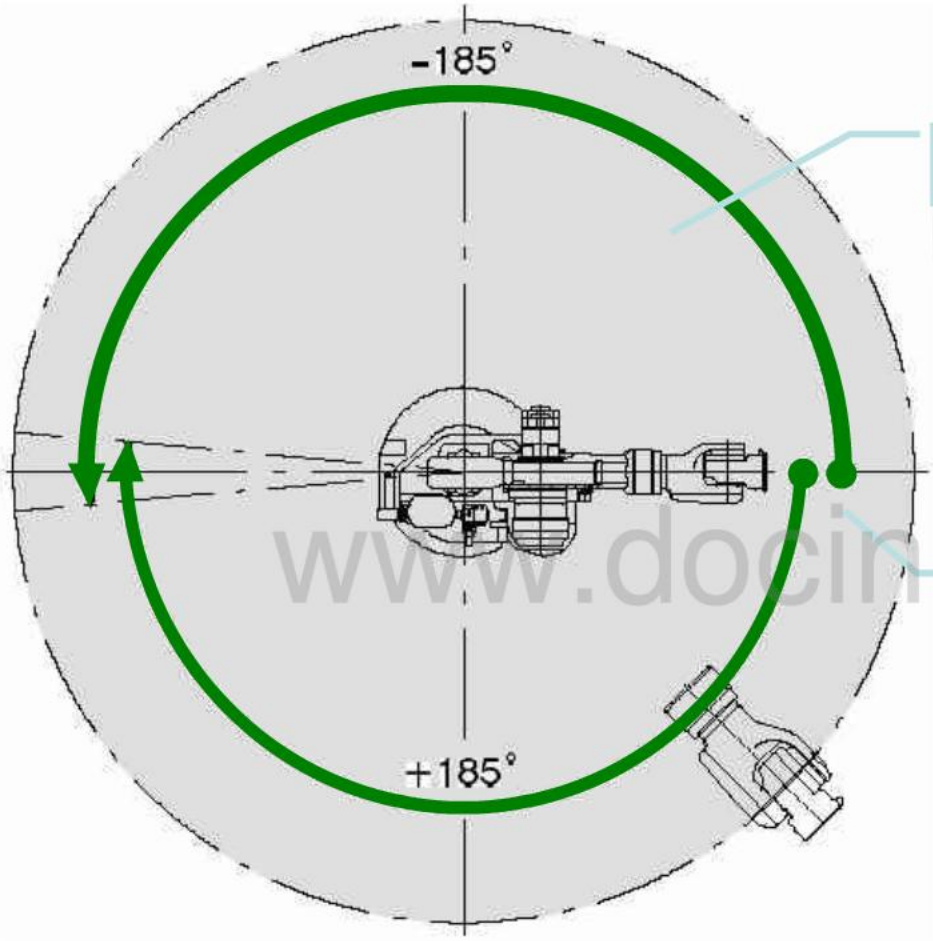
工作范围



俯视图：工作范围

角度：1轴>360°

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4轴（Axis 4）
6轴（Axis 6）
5轴（Axis 5）
3轴（Axis 3）
2轴（Axis 2）
1轴（Axis 1）
1、2、3轴是主轴
4、5、6轴是腕部轴

KR的拆分

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腕部的拆分

注意：拆卸前使用适当的设备确保连接臂不会掉下来！

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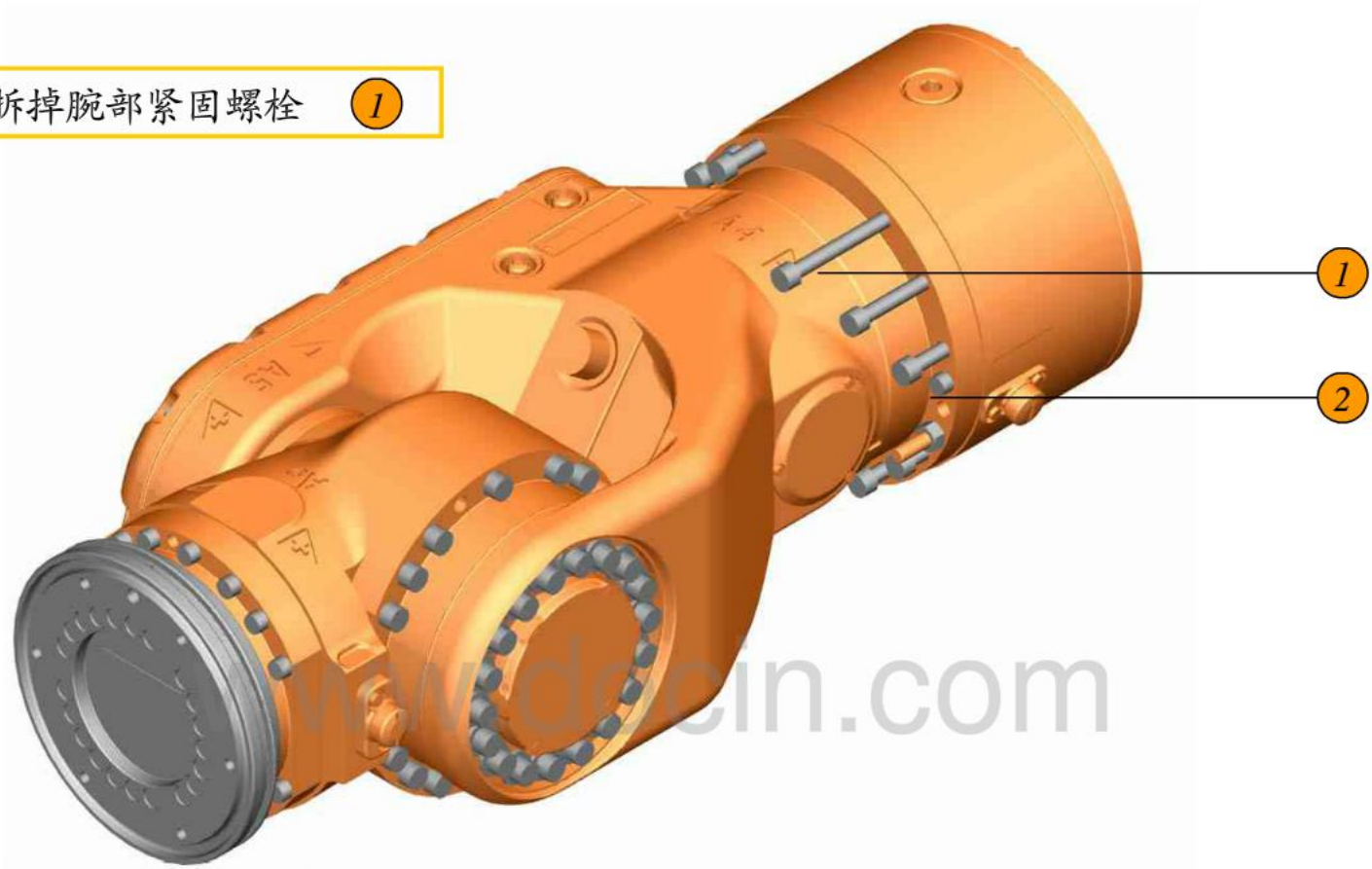
拆掉腕部紧固螺栓 1



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1 11个腕部紧固螺栓M10 x 170 / 10.9

2 3个传动装置紧固螺栓

传动装置紧固螺栓不要完全拆下来 ②

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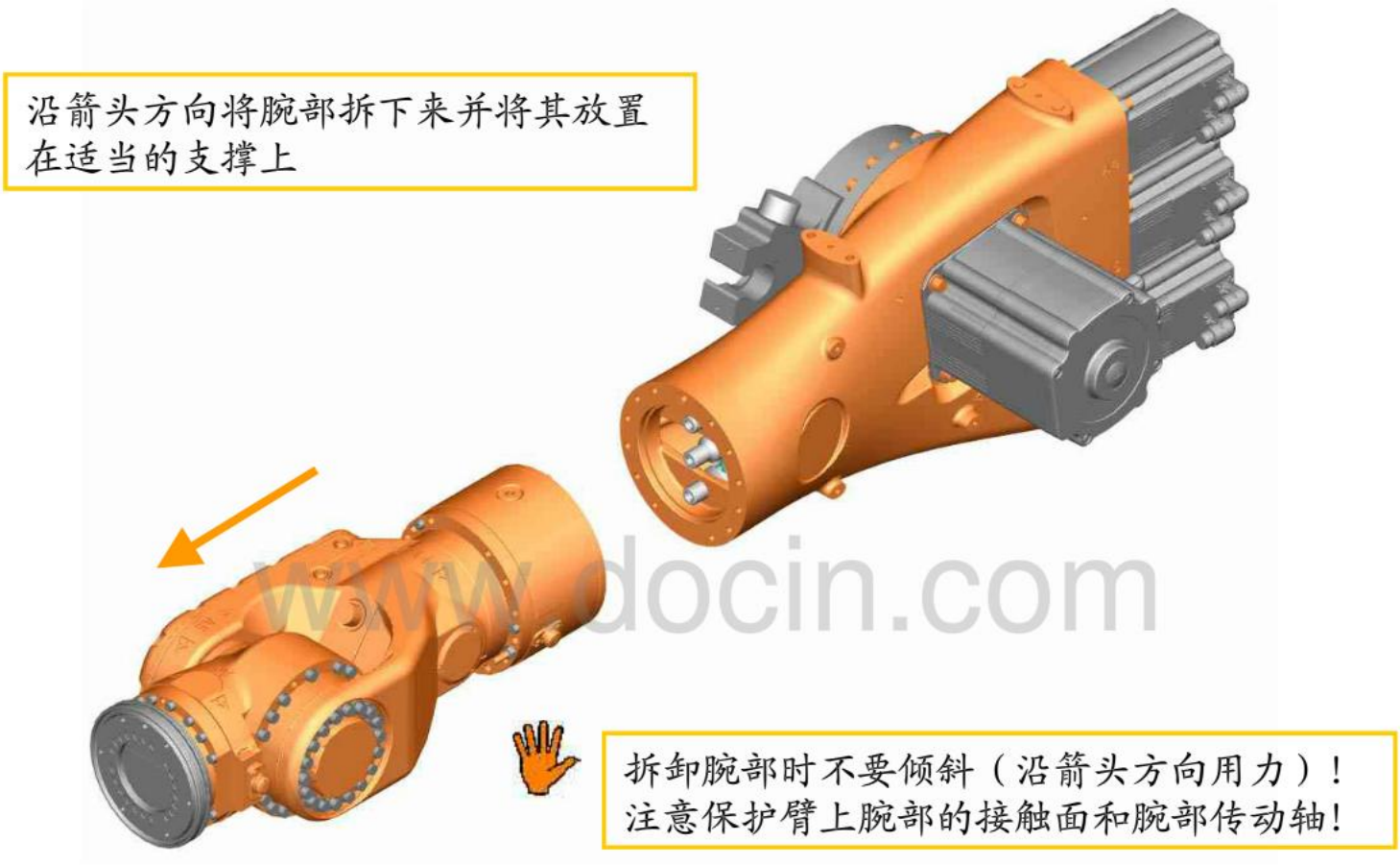
① 11个腕部紧固螺栓M10 x 170 / 10.9

② 3个传动装置紧固螺栓



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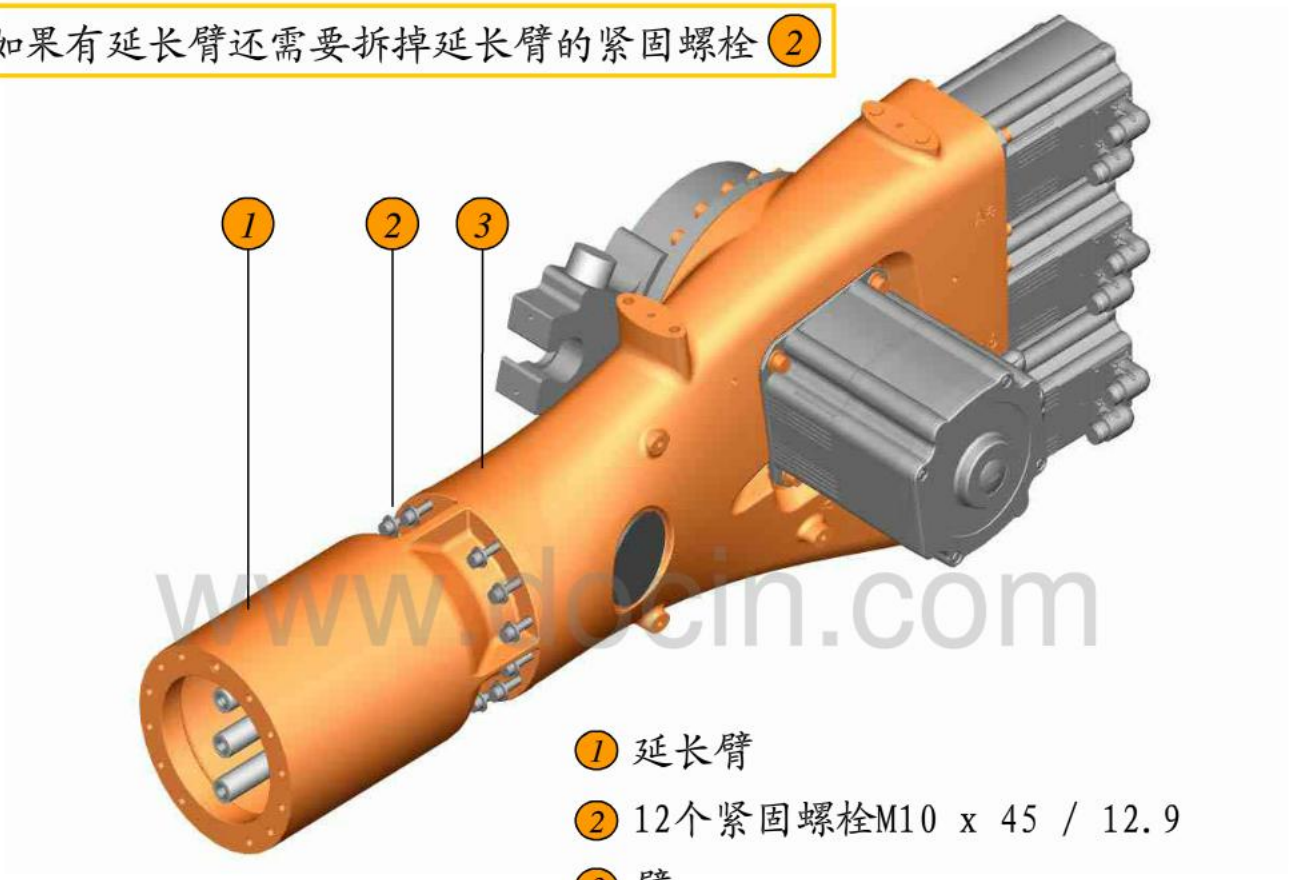
如果有延长臂还需要拆掉延长臂的紧固螺栓 ②



① 延长臂

② 12个紧固螺栓M10 x 45 / 12.9

③ 臂

沿箭头方向拆下延长部分并放置在合适的支撑上

1 12个紧固螺栓M10 x 45 / 12.9

2 延长臂

3 臂

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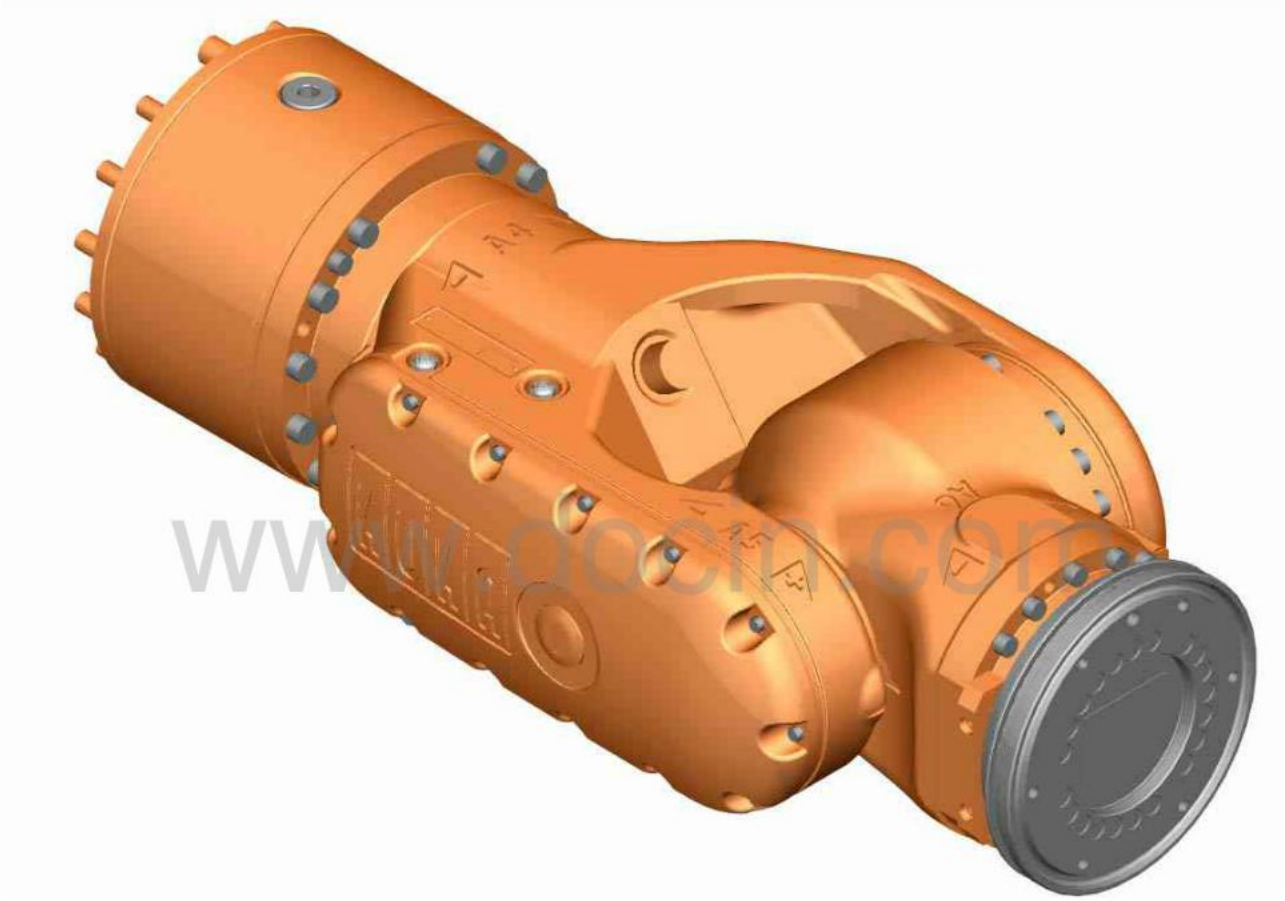
腕部



臂的拆分

拔掉电机和控制相关的连接

拆卸前使用适当的设备确保臂不会掉下来！

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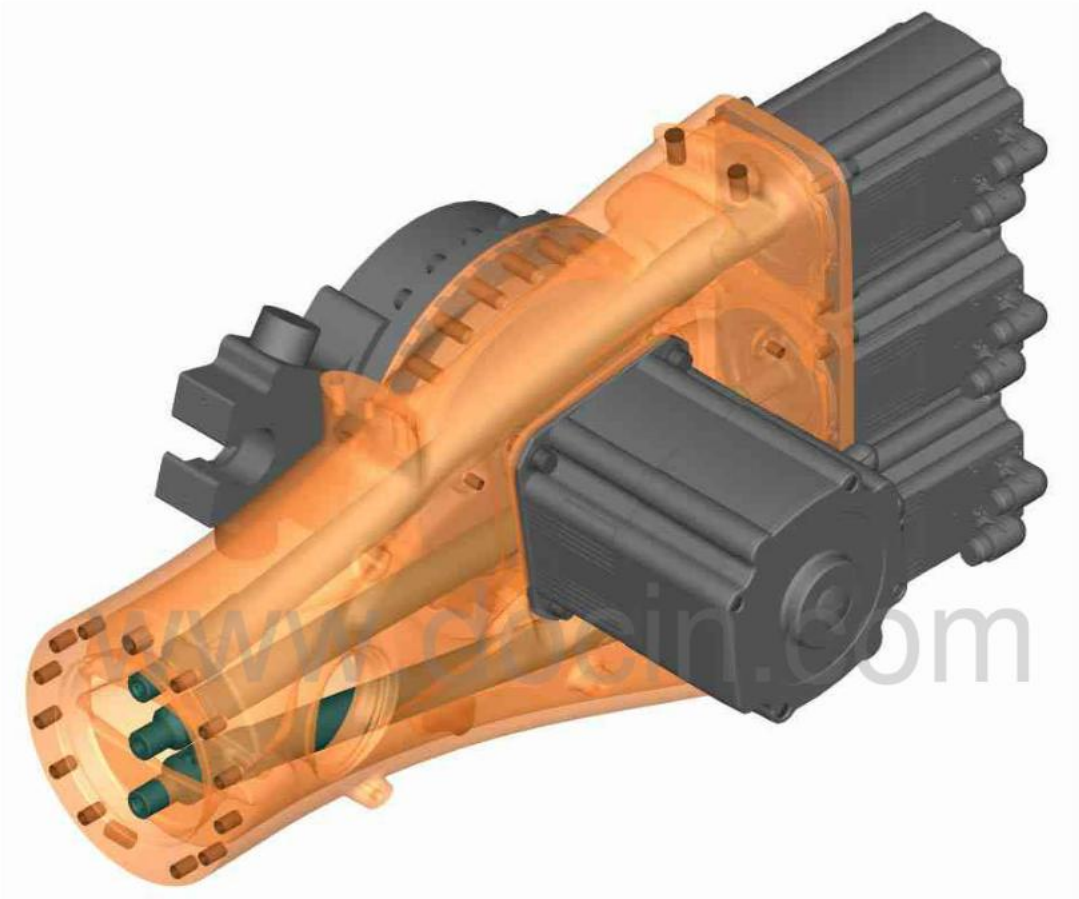
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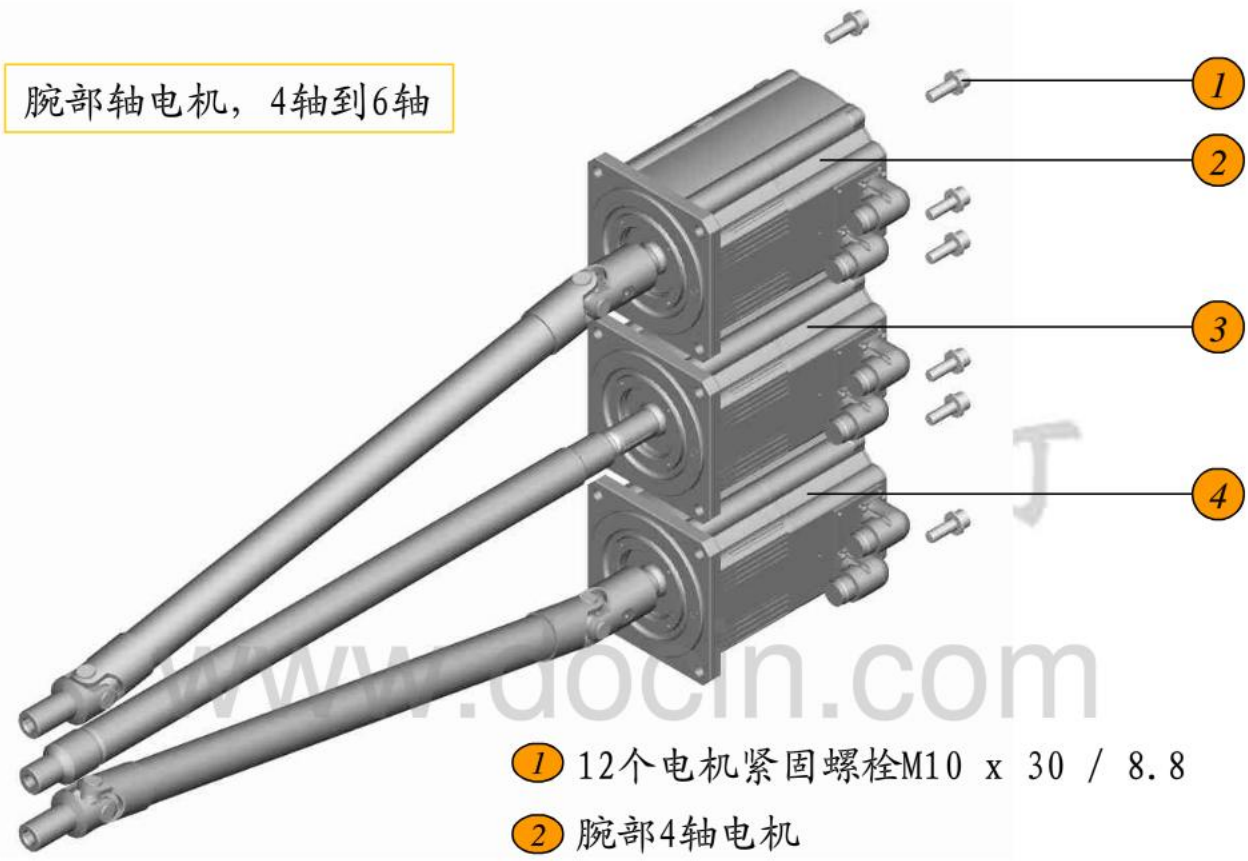
腕部轴电机，4轴到6轴



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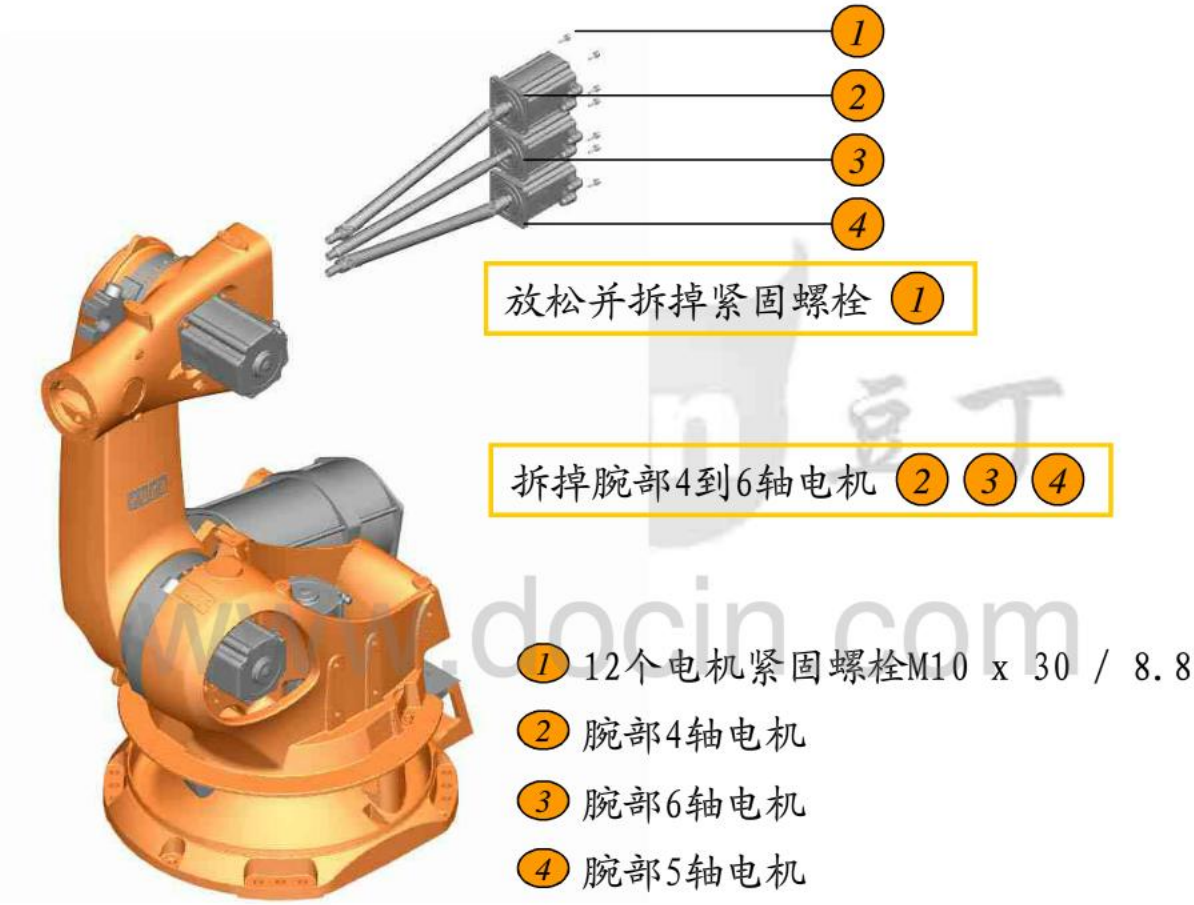
1. 12个电机紧固螺栓M10 x 30 / 8.8
2. 腕部4轴电机
3. 腕部6轴电机
4. 腕部5轴电机



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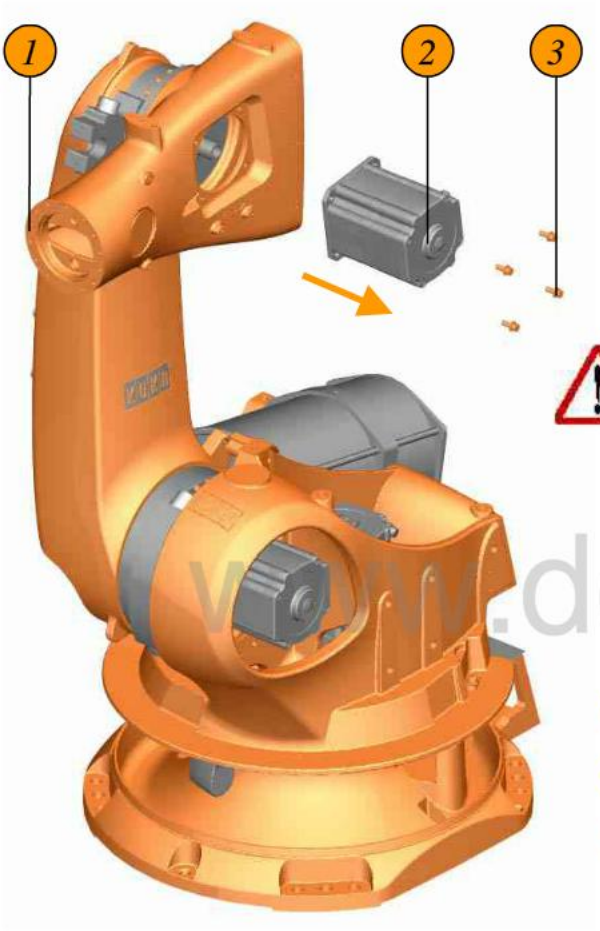
3轴电机



旋开紧固螺栓 3，拆下电机 2

确定臂不会移动!

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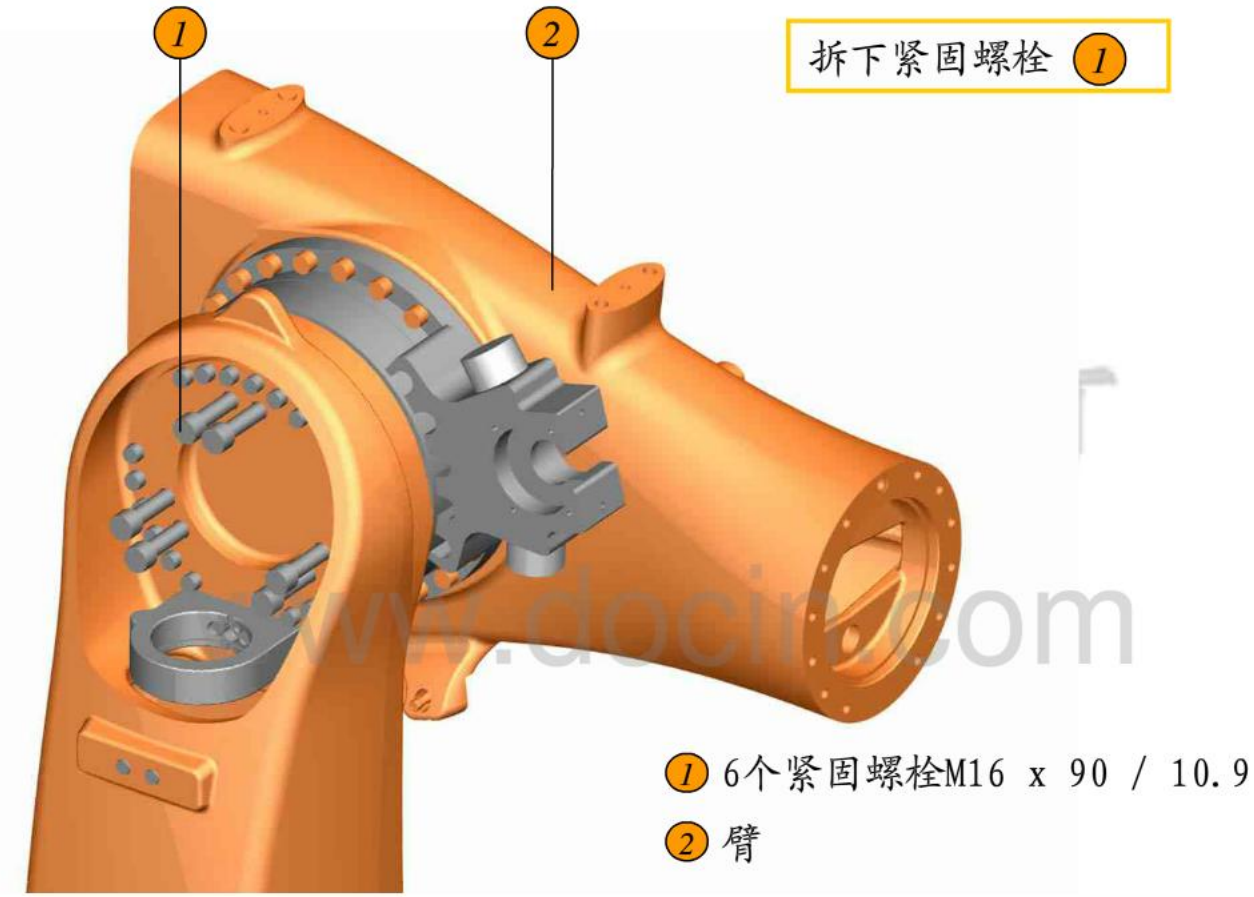
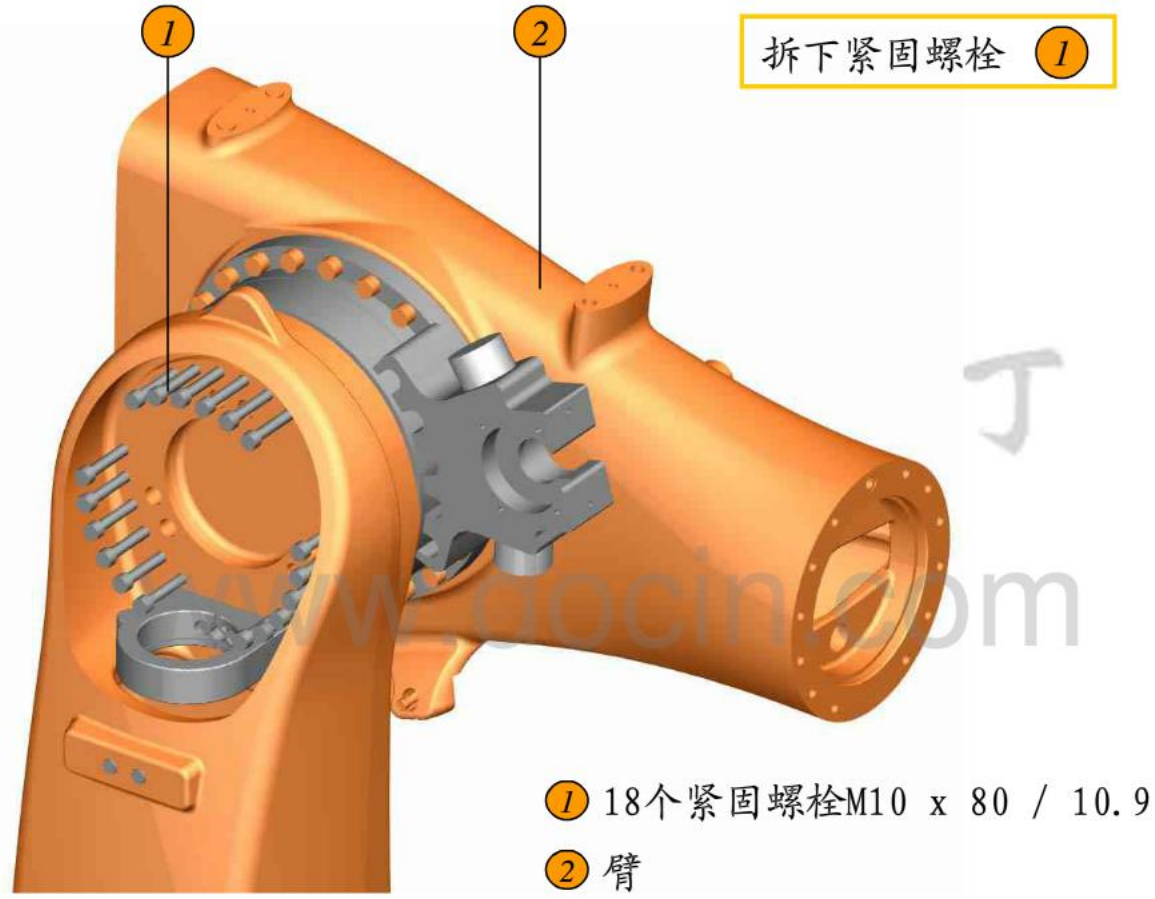
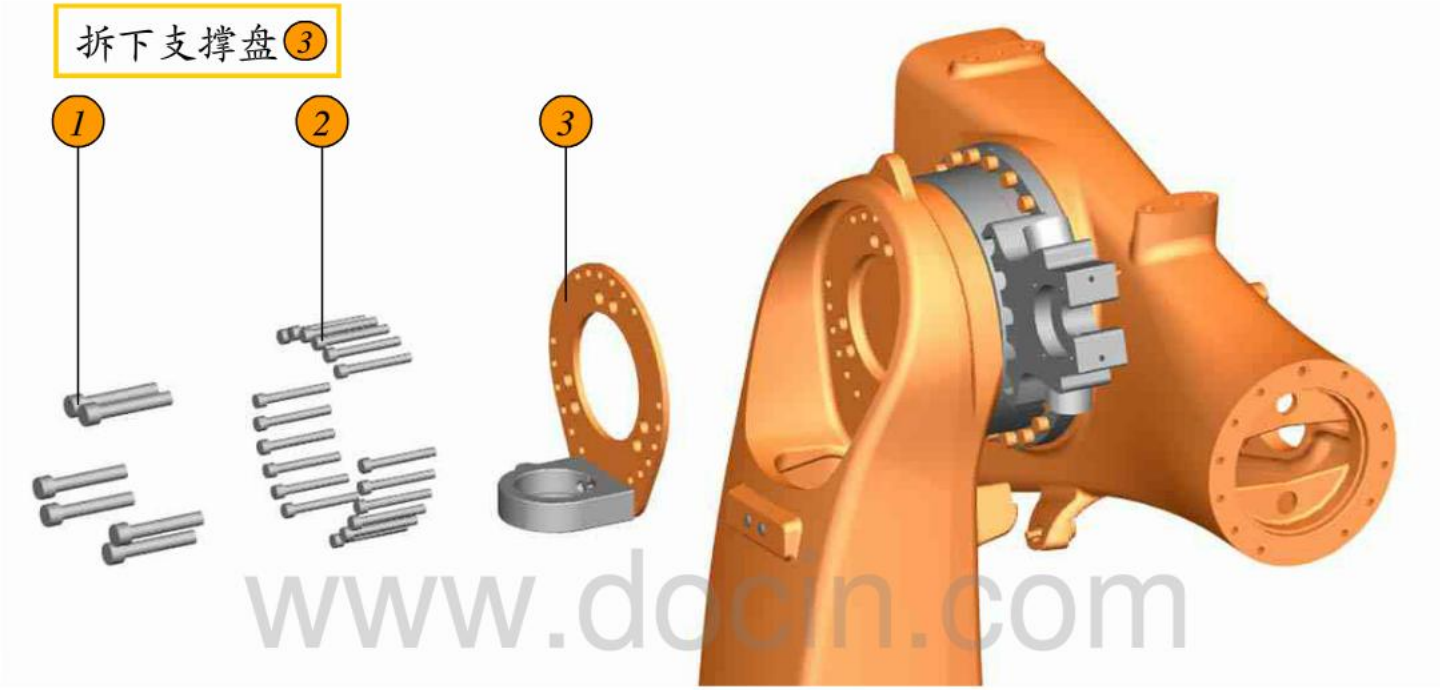
1 臂

2 3轴电机

3 4个电机紧固螺栓M12 x 30 / 8.8


1
2
拆下紧固螺栓 1
1 6个紧固螺栓M16 x 90 / 10.9
2 臂


1
2
拆下紧固螺栓 1
1 18个紧固螺栓M10 x 80 / 10.9
2 臂



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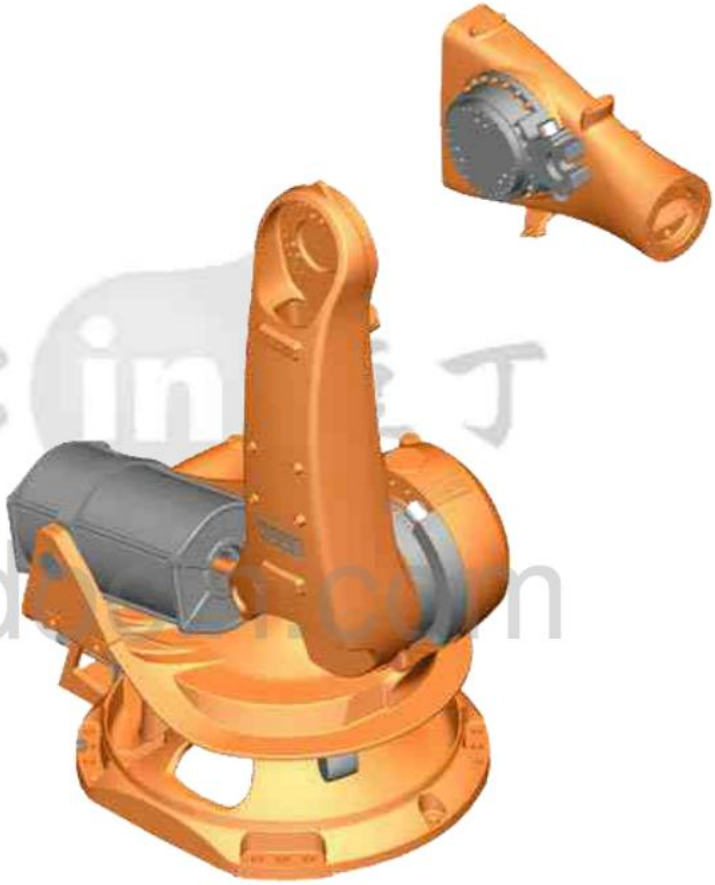
1 6个紧固螺栓M16 x 90 / 10.9
2 18个紧固螺栓M10 x 80 / 10.9
3 支撑盘

将臂拆下并搬走

拆臂时臂不能倾斜



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3轴传动装置

标记好硬限位位置，然后拆下紧固螺栓 ③ 即可拿下硬限位 ②。

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① 3轴传动装置

② 橡胶硬限位

③ 5个紧固螺栓M12 x 90 / 10.9

拆下紧固螺栓3，即可用力拆下传动单元

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1 臂

2 传动单元

3 19个紧固螺栓M12 x 60 / 10.9

4轴到6轴电机

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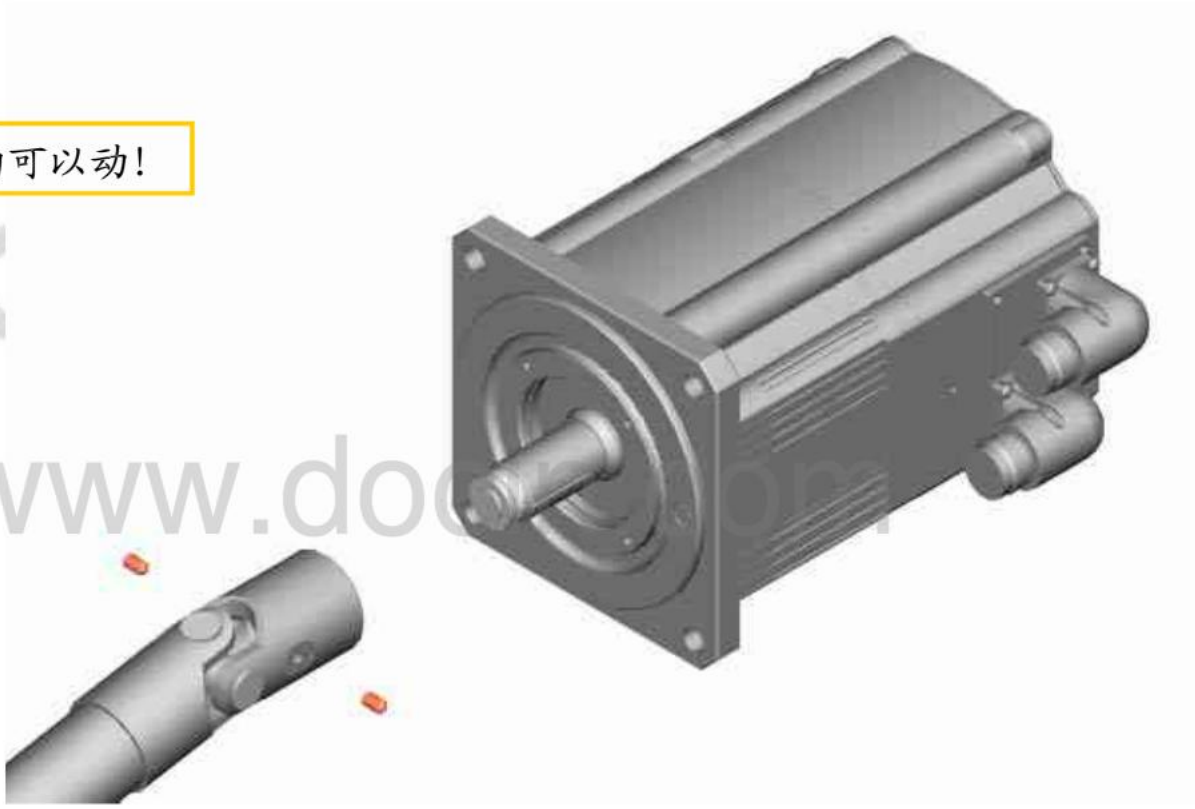
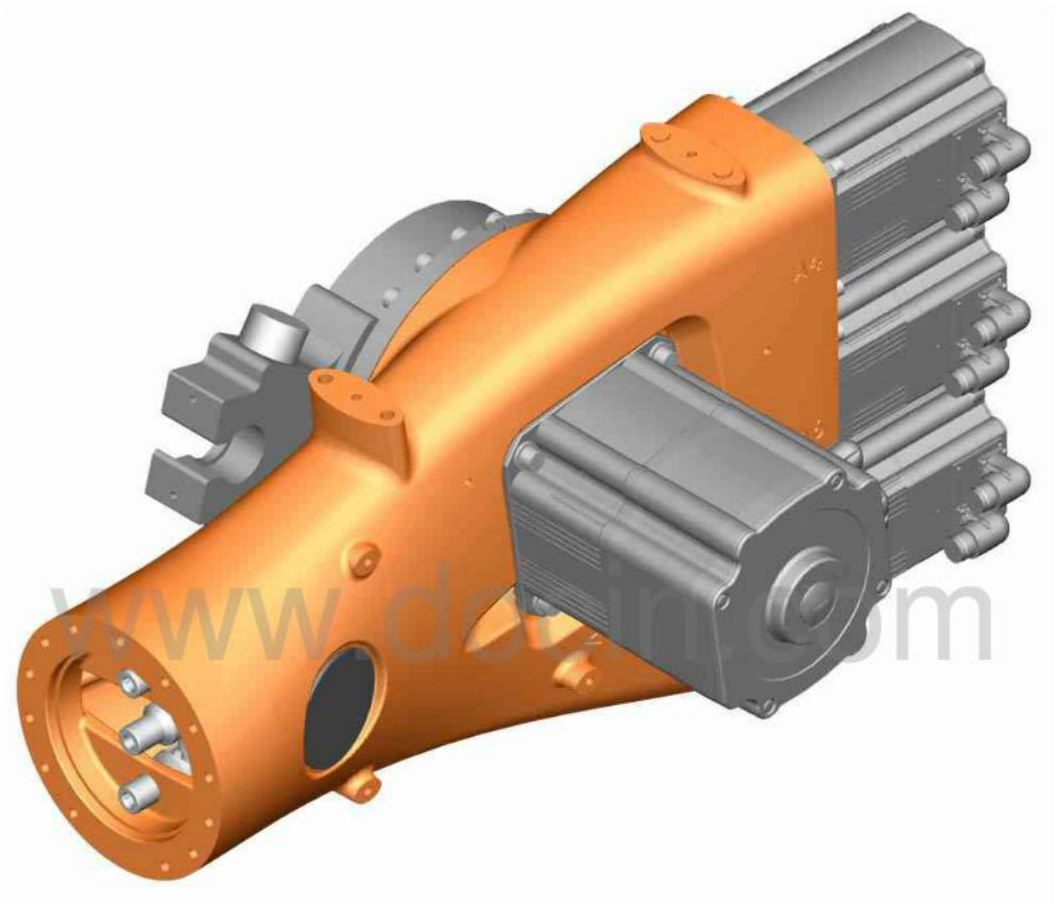
更换轴时注意别把2个螺丝销钉搞丢了，记得涂螺纹紧固胶。

确保轴向可以动！



www.doc88.com



连接臂的拆分

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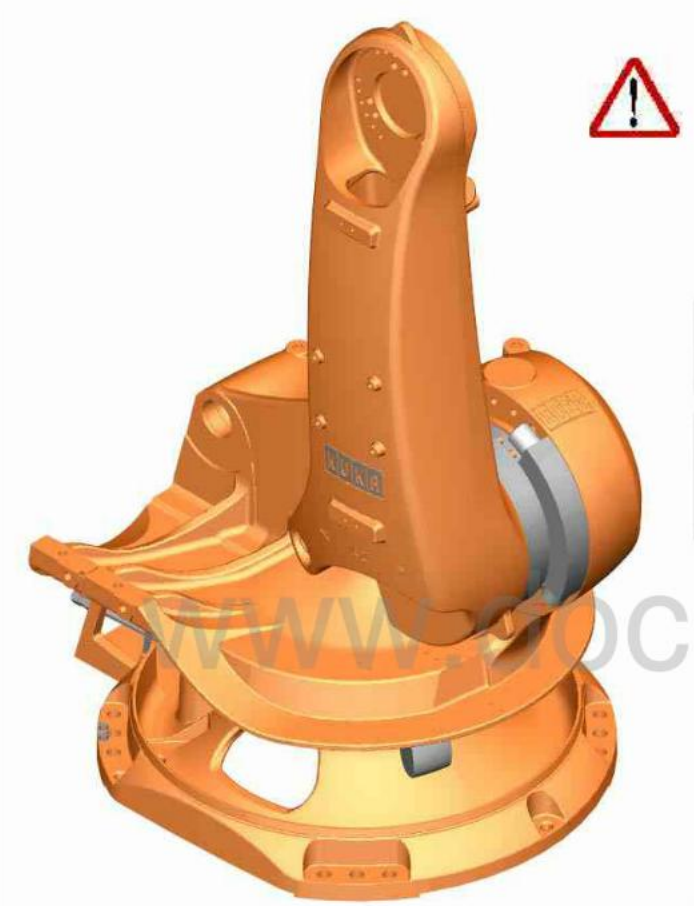

拆卸前使用适当的设备保证连接臂不会掉下来！

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2轴电机

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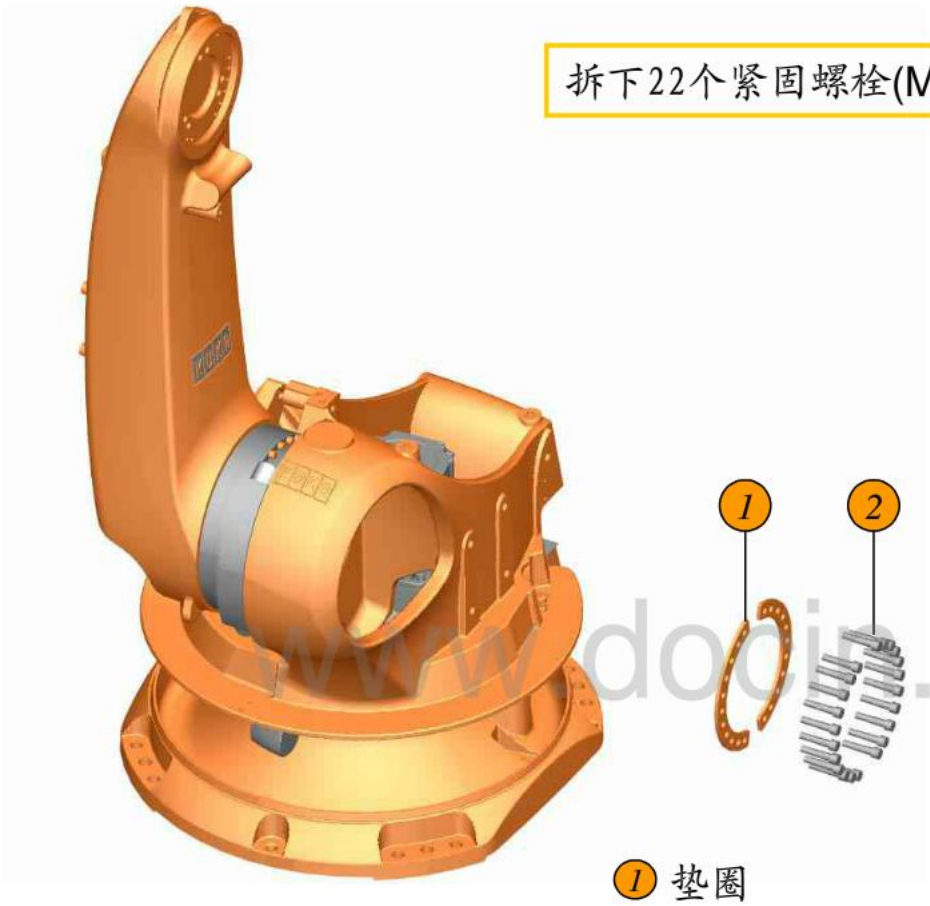
拆下22个紧固螺栓(M16 x 70 / 10.9)



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1 垫圈

2 22个紧固螺栓M16 x 70 / 10.9

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1 垫圈

2 22个紧固螺栓M16 x 70 / 10.9

3 2轴电机

4 4个电机紧固螺栓M12 x 25 / 8.8

小心地将连接臂取出并放到适当的支撑上

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2轴传动装置

拆下传动装置紧固螺栓 ①并使用2个螺栓将硬限位 ②顶出来，传动装置即可拆下来

① 7个传动装置紧固螺栓M12 x 140 / 10.9

② 橡胶硬限位

③ 连接臂与2轴间的传动装置

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拆下限位 2 并拆下紧固螺栓 3

用适当的设备保护传动装置 4，提起来并放到合适的支撑上

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1 7个传动装置紧固螺栓M12 x 140 / 10.9

2 橡胶硬限位

3 23个传动装置紧固螺栓M12 x 100 / 10.9

4 2轴传动装置

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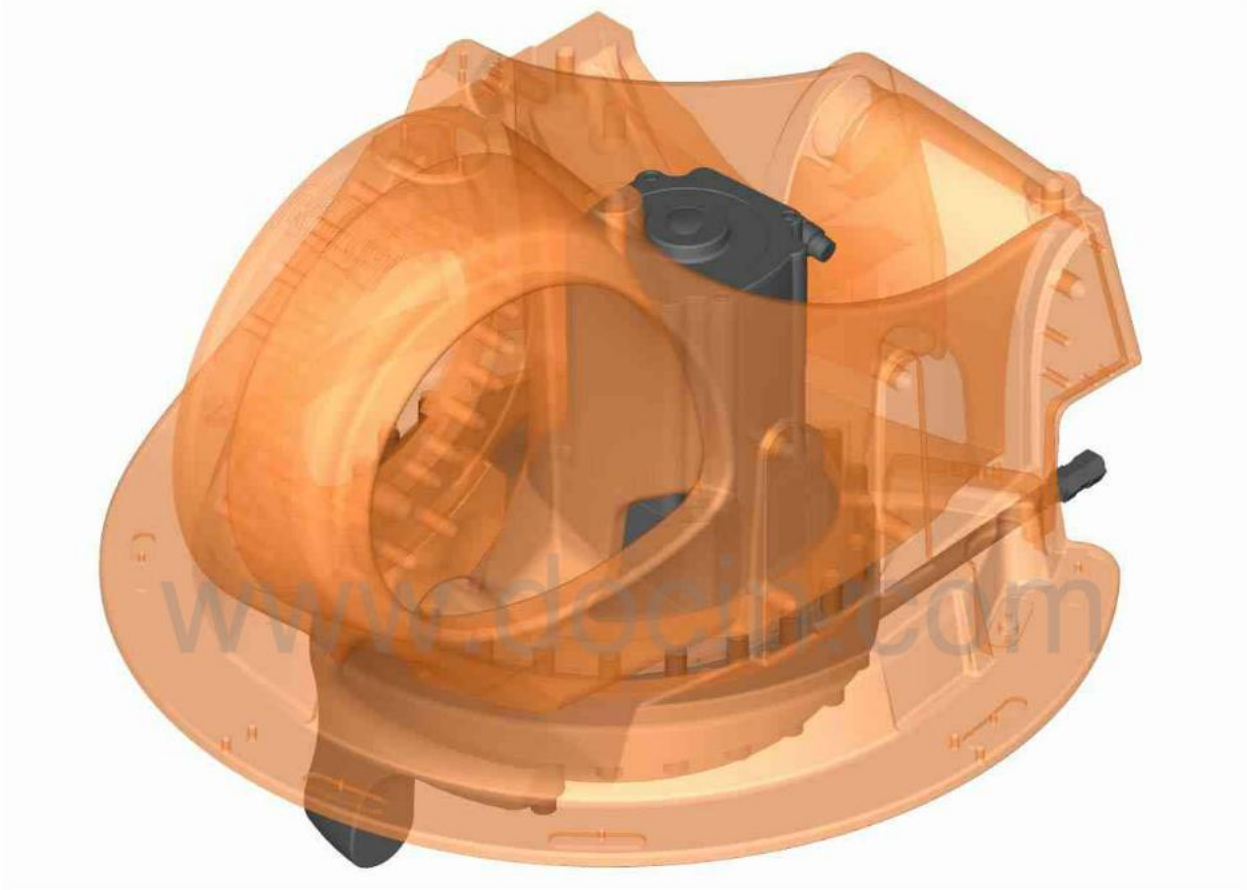
旋转机构的拆分

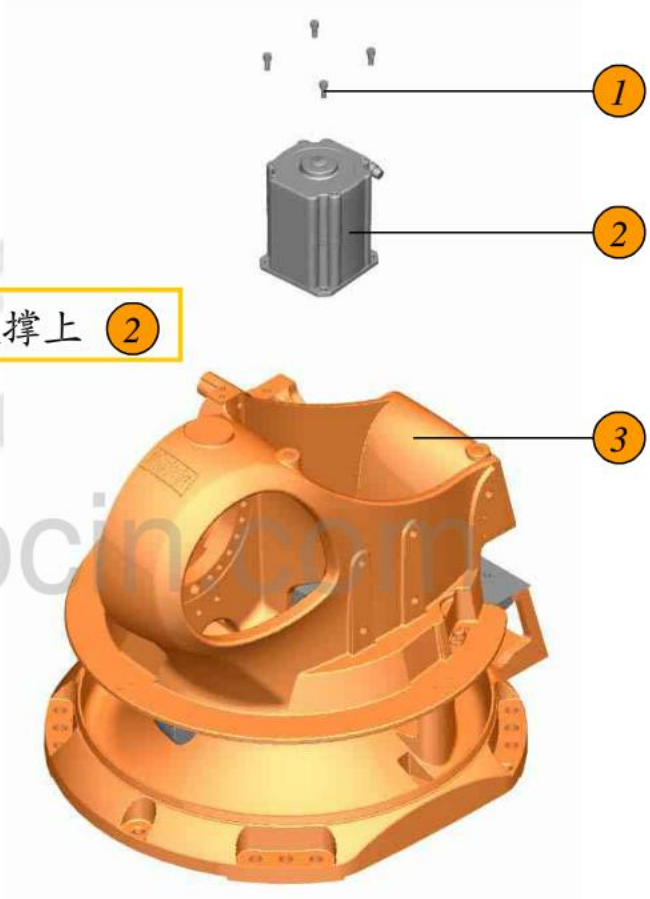
www.dongm.com


www.dbcip.com

1轴电机

放松并拆掉紧固螺栓 1

小心地将电机取出并放到适当的支撑上 2



1 4个电机紧固螺栓

2 1轴电机

3 旋转机构

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用4个M20 x 50 / 8.8的紧固螺栓安装左右叉槽（方便使用叉车叉举）（用370Nm的扭力扳手上紧）

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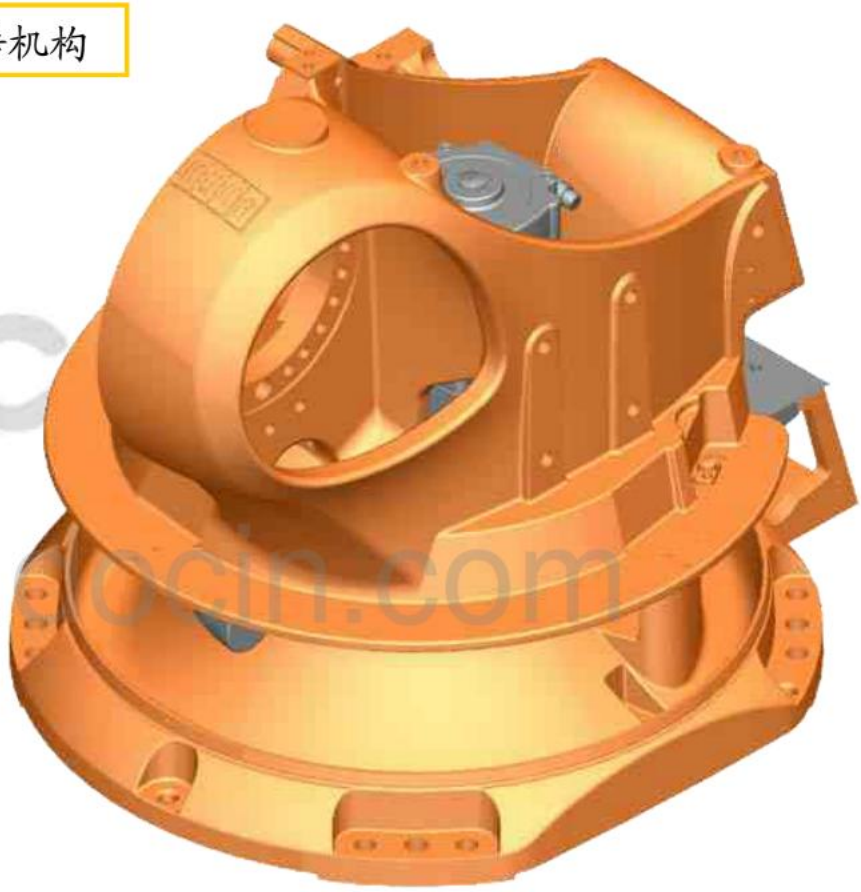
使用合适的方法保护旋转机构



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基座是用螺栓从下面固定到1轴传动装置上的，拆之前基座和旋转机构一起要旋转180度（倒过来拆）。

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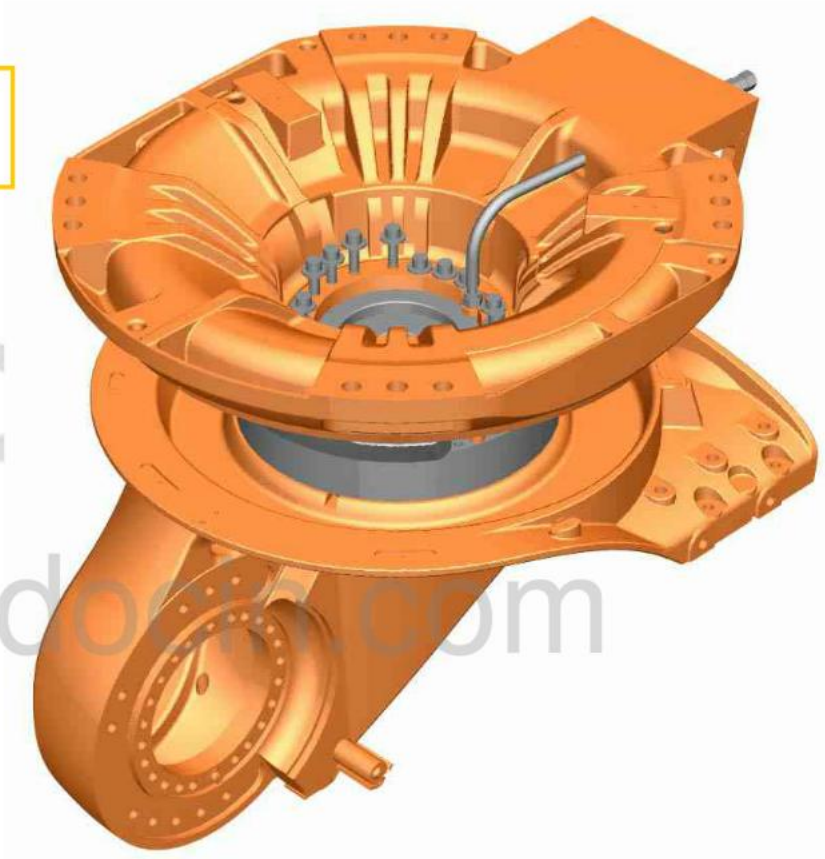
松开旋转机构的20个紧固螺栓(M16 x 50 / 12.9)...



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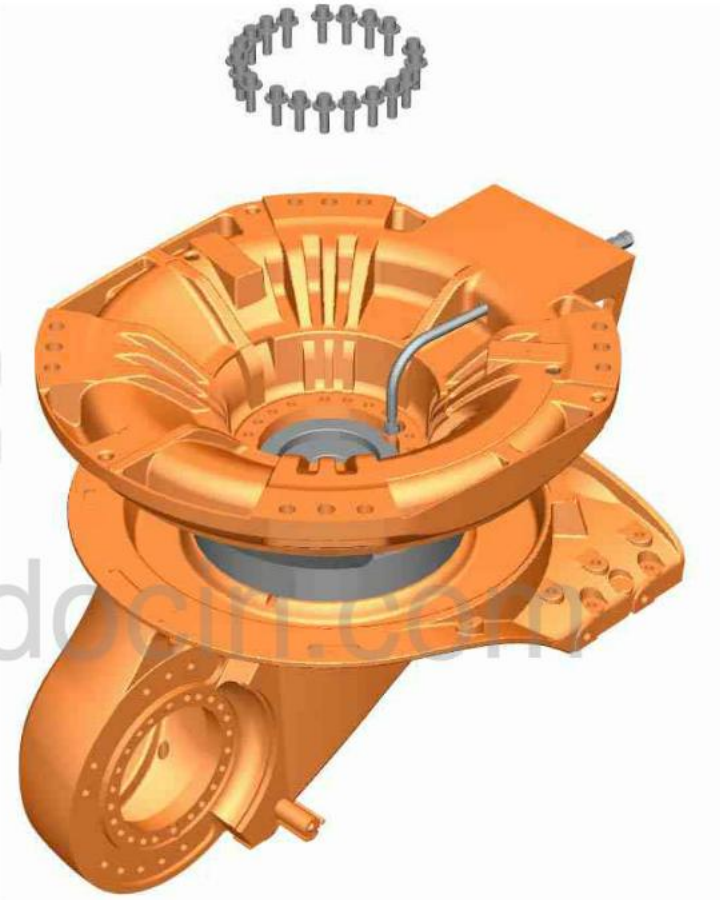
...并且拿掉



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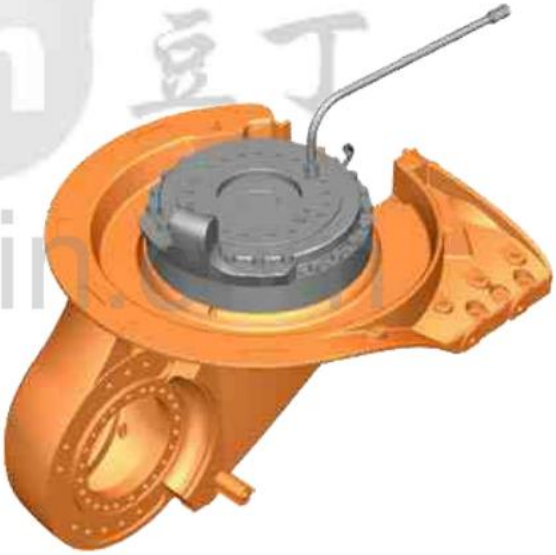
用适当的设备将基座从旋转机构上拆下来，并放到合适的支撑上



基座提起时不能倾斜

移走基座时注意保护排油软管

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1轴电机传动装置

放松并拆掉限位 2 的紧固螺栓 1

拆掉限位 2

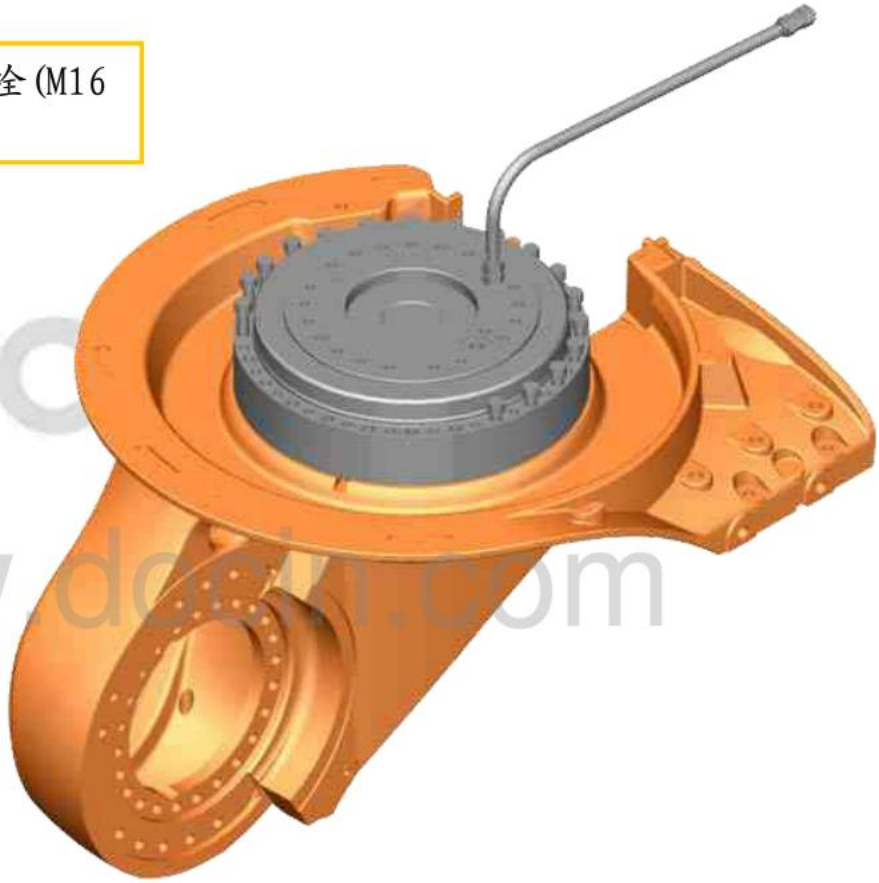
1 7个紧固螺栓M16 x 150 / 12.9

2 1轴限位

3 6个销钉

4 旋转机构

松开传动装置的17个紧固螺栓(M16 x 110 / 12.9)...



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...并且拿掉

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传动装置需用力挤出来，使用适当的设备将其提起来并放到一个适当的支撑上。

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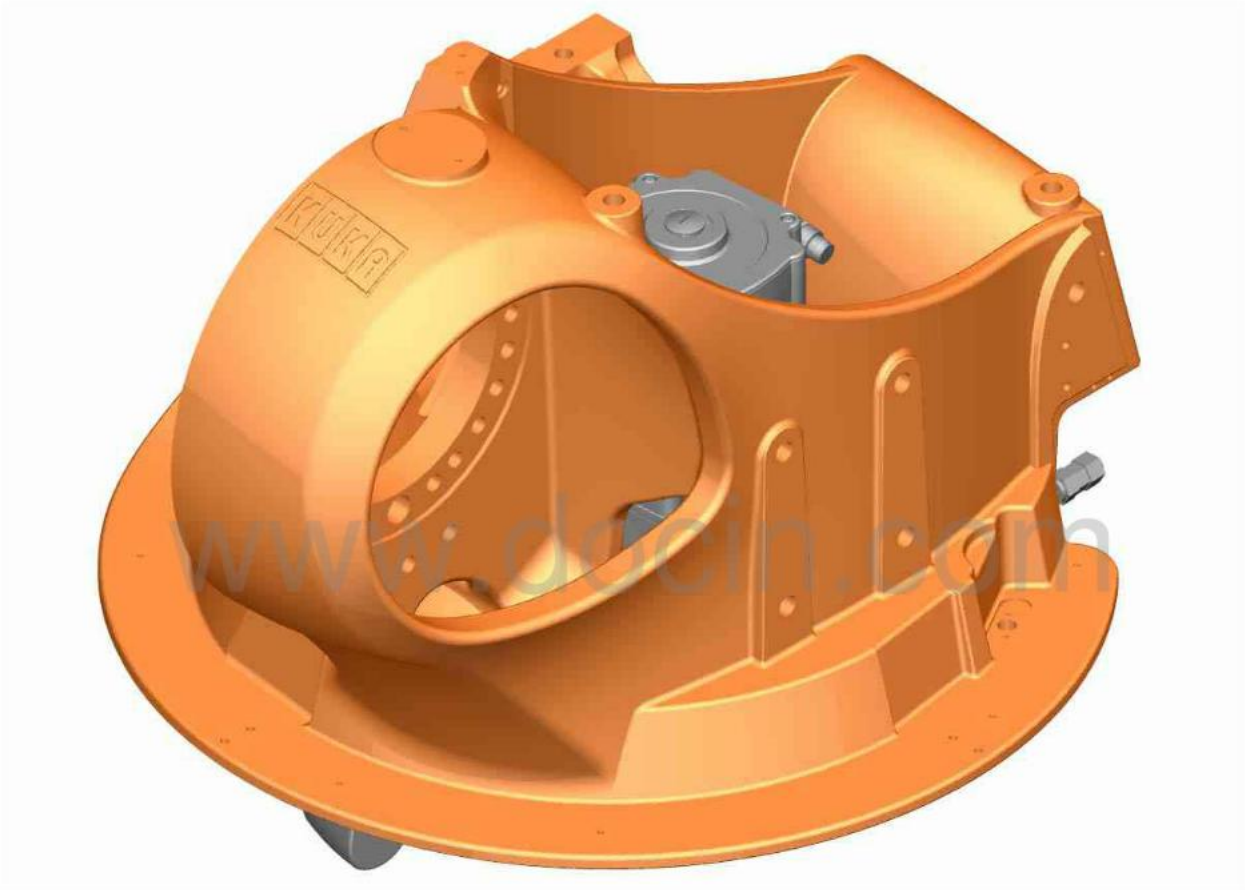

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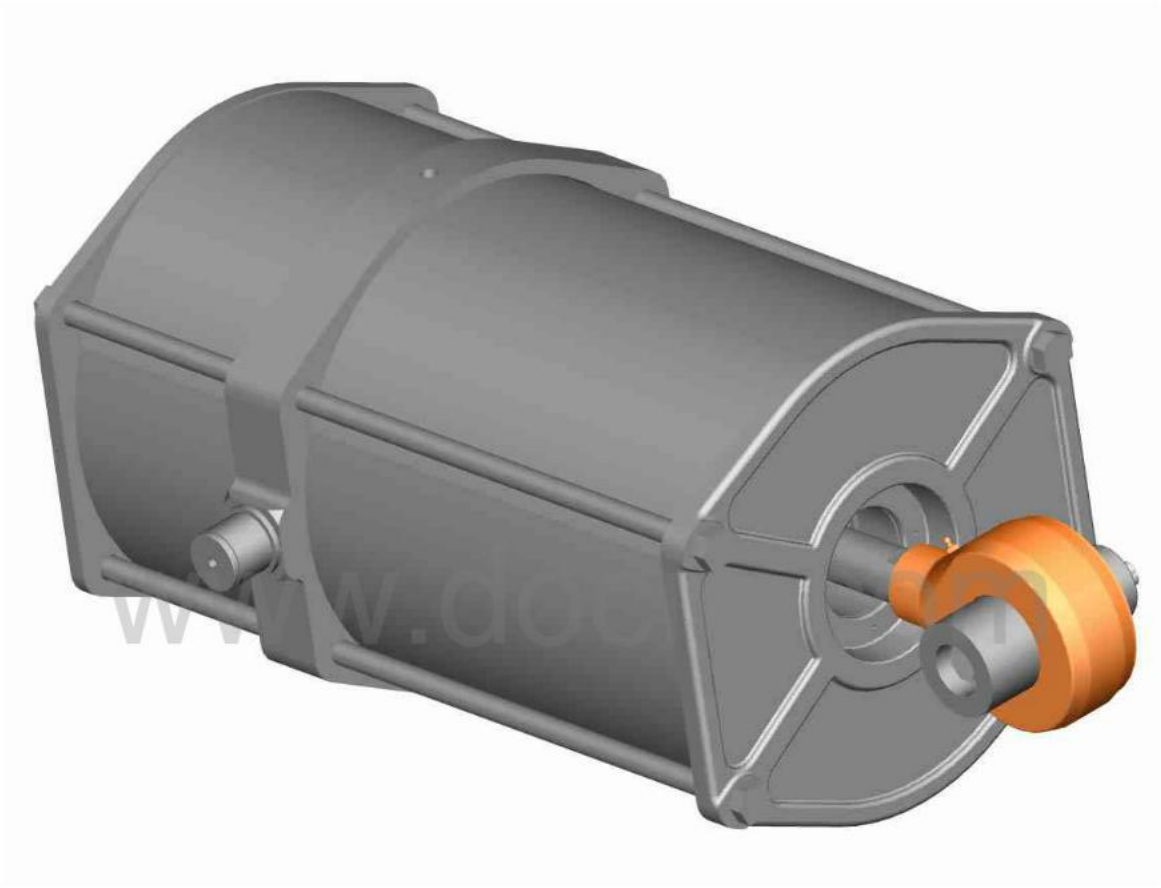
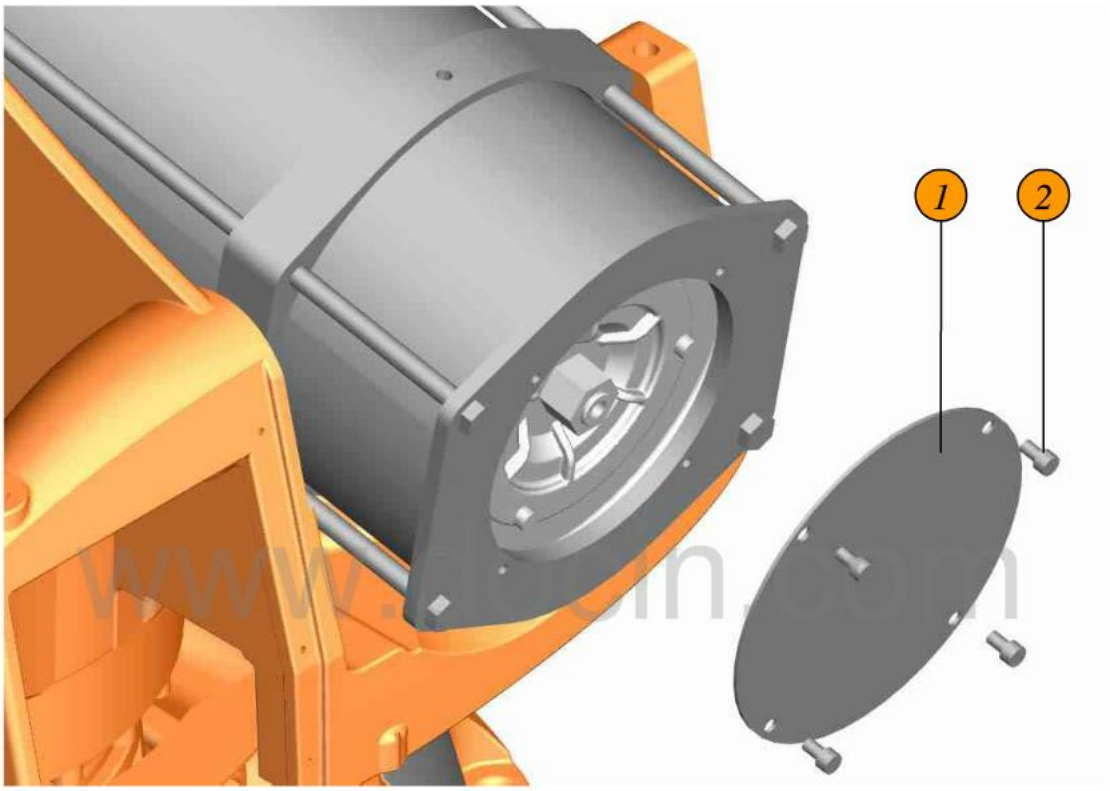
平衡系统的拆分

采用适当的方法保护平衡系统



拆下紧固螺栓并拿下盖子

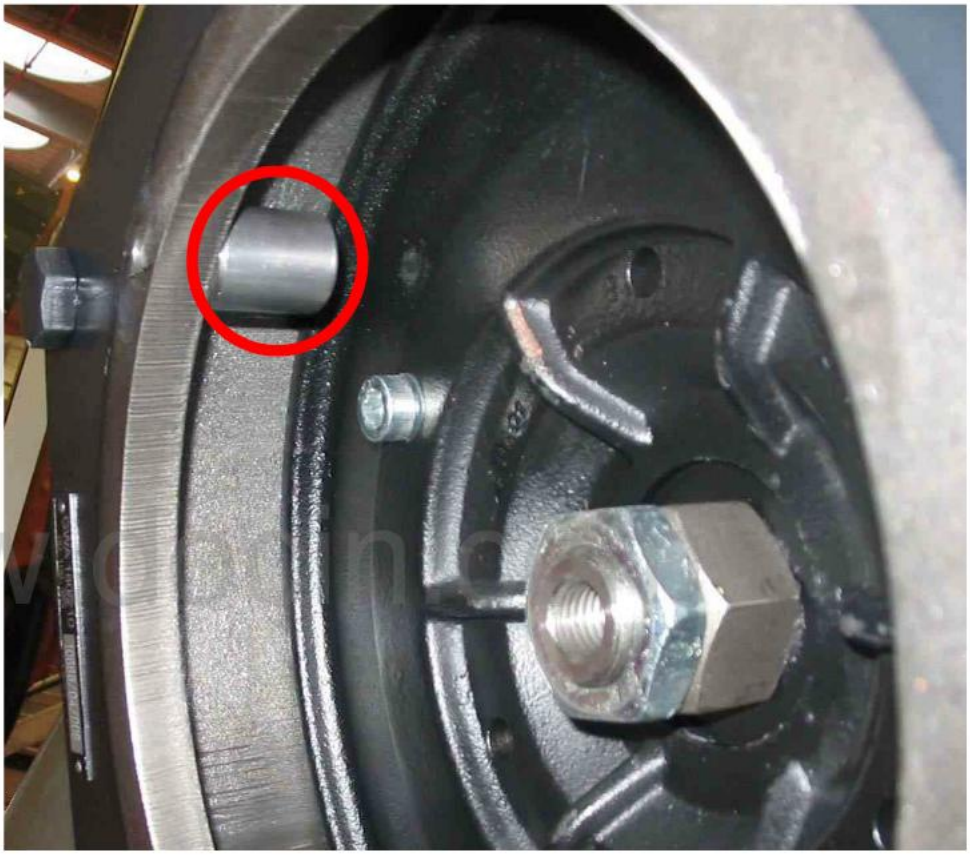


1 平衡系统盖子

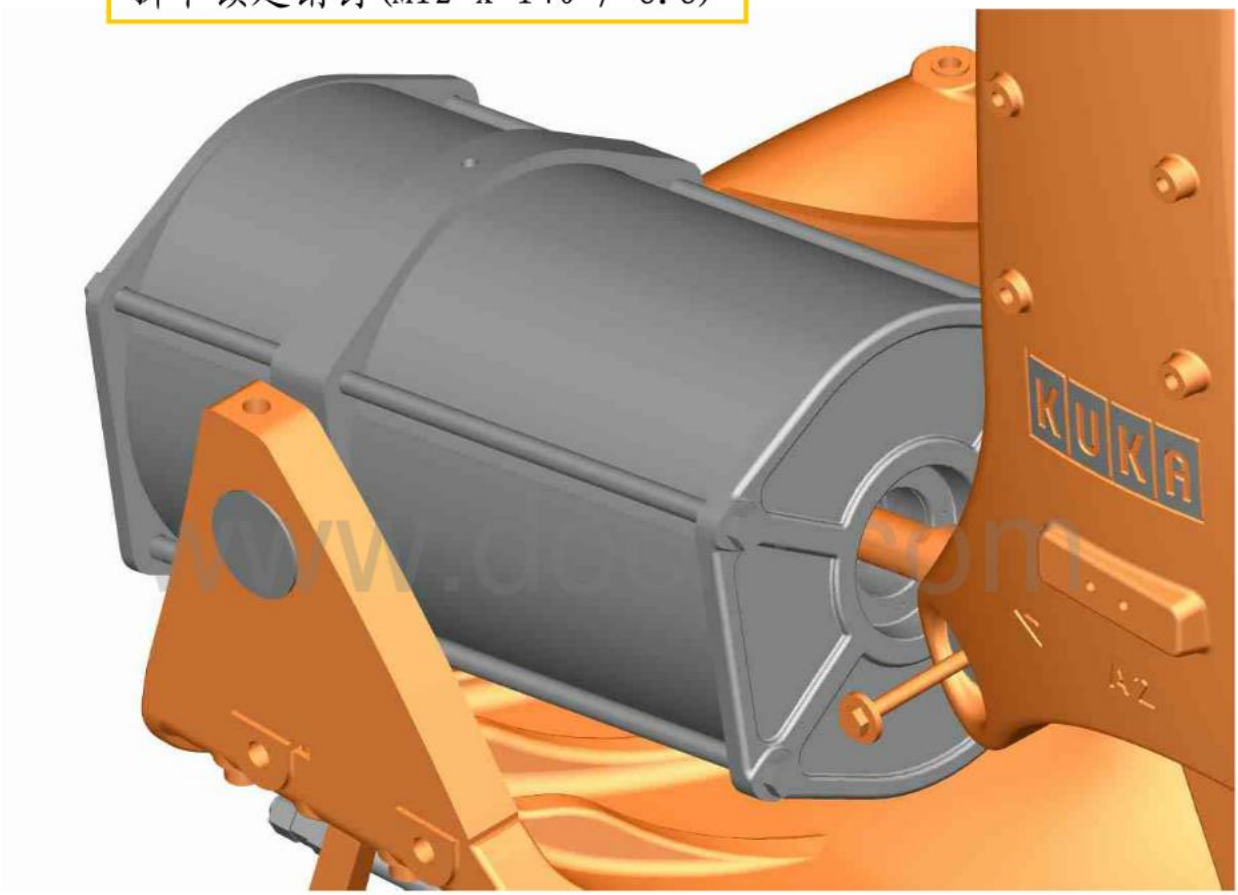
2 4个紧固螺栓M10 x 16 / 8.8

插入两个垫块

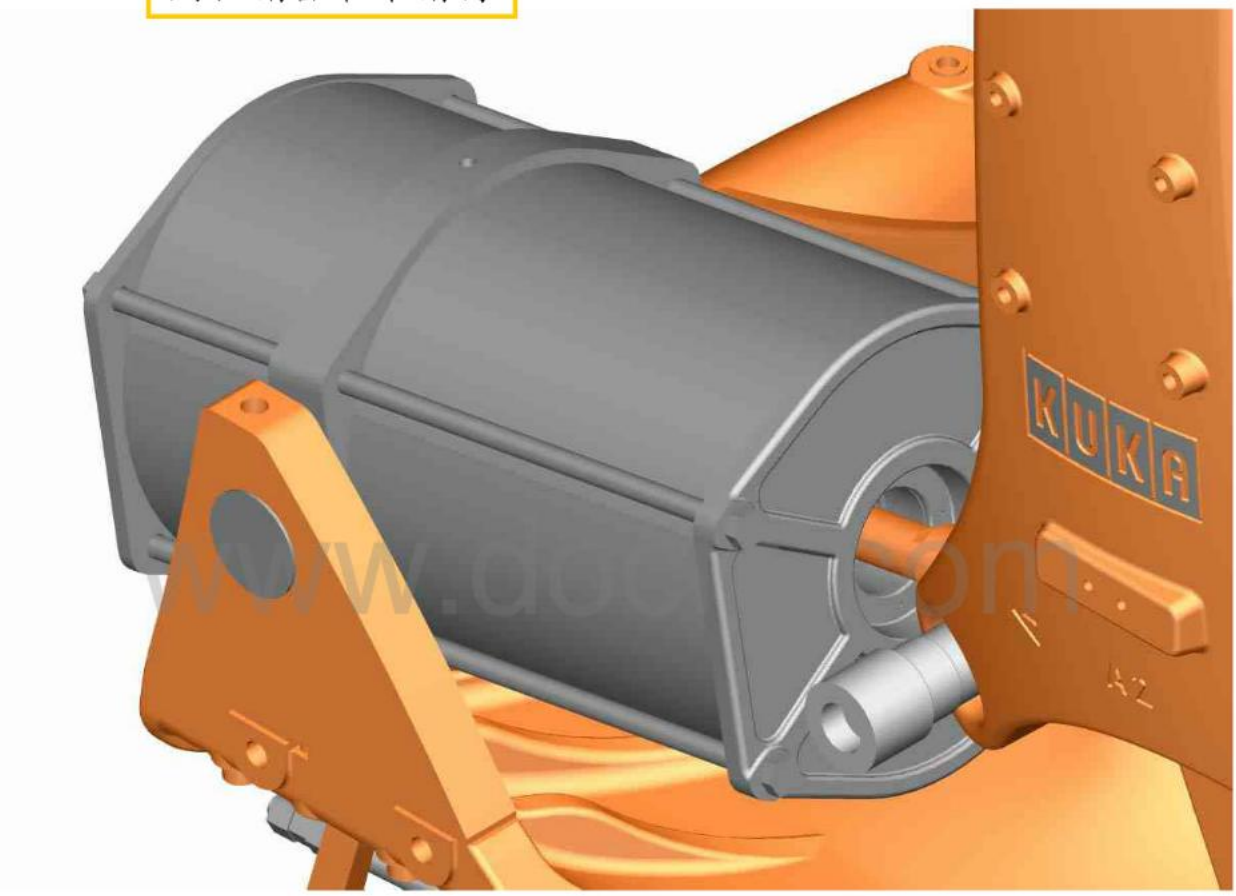
注意！弹簧缸很危险

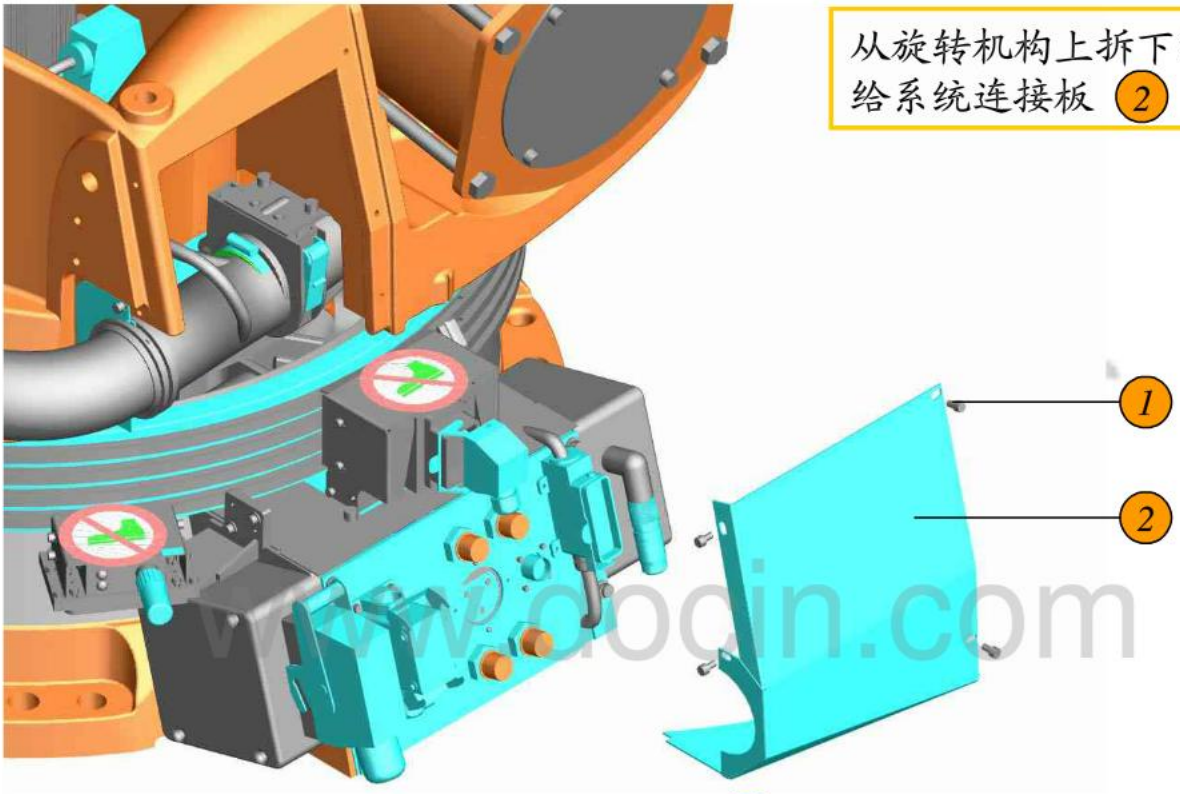


拆下锁定销钉(M12 x 140 / 8.8)



用拔销器取下销钉

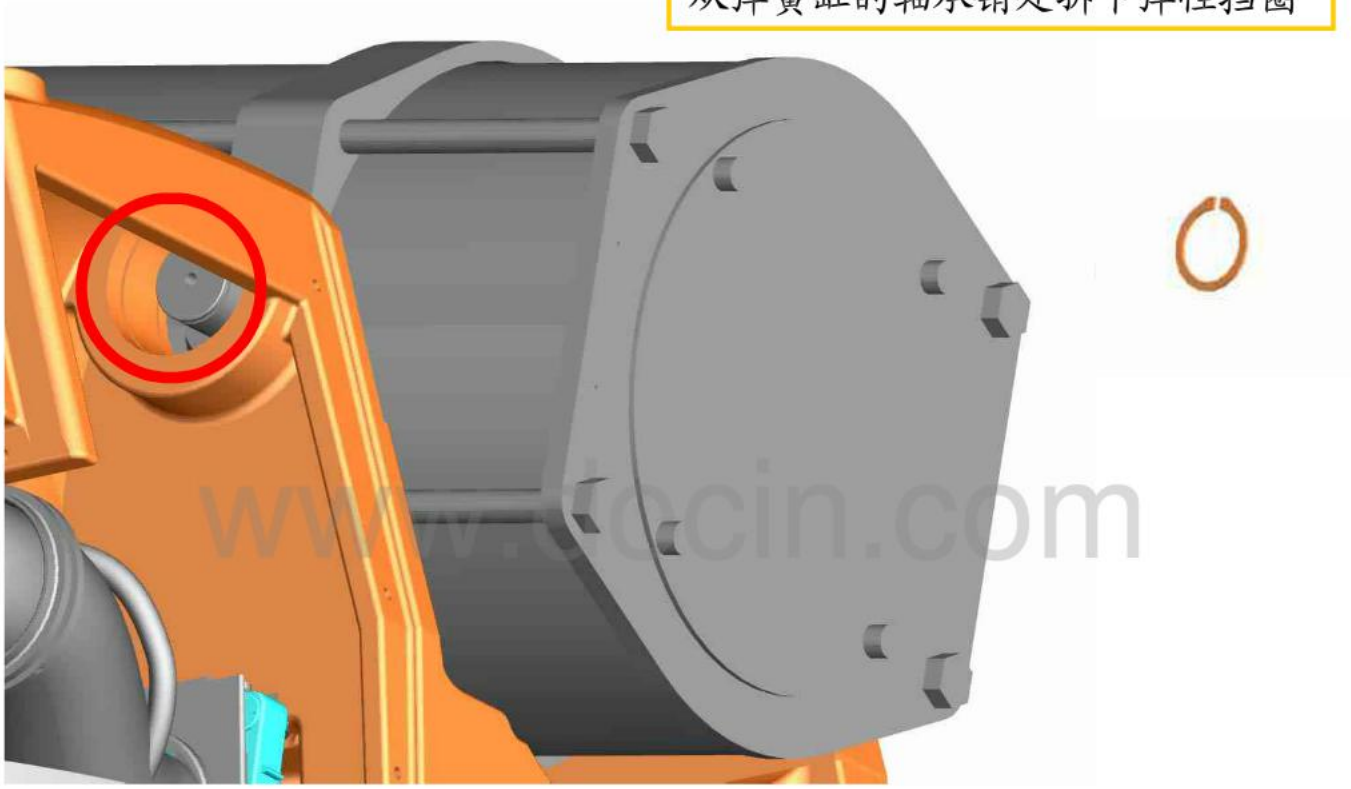




1 4个紧固螺栓M6 x 12 / 8.8

2 盖子，旋转机构

从弹簧缸的轴承销处拆下弹性挡圈



拆下轴承座处的两个紧固螺栓(M16 x 80 / 10.9)，然后拆下轴承座

注意轴承座上的导向键

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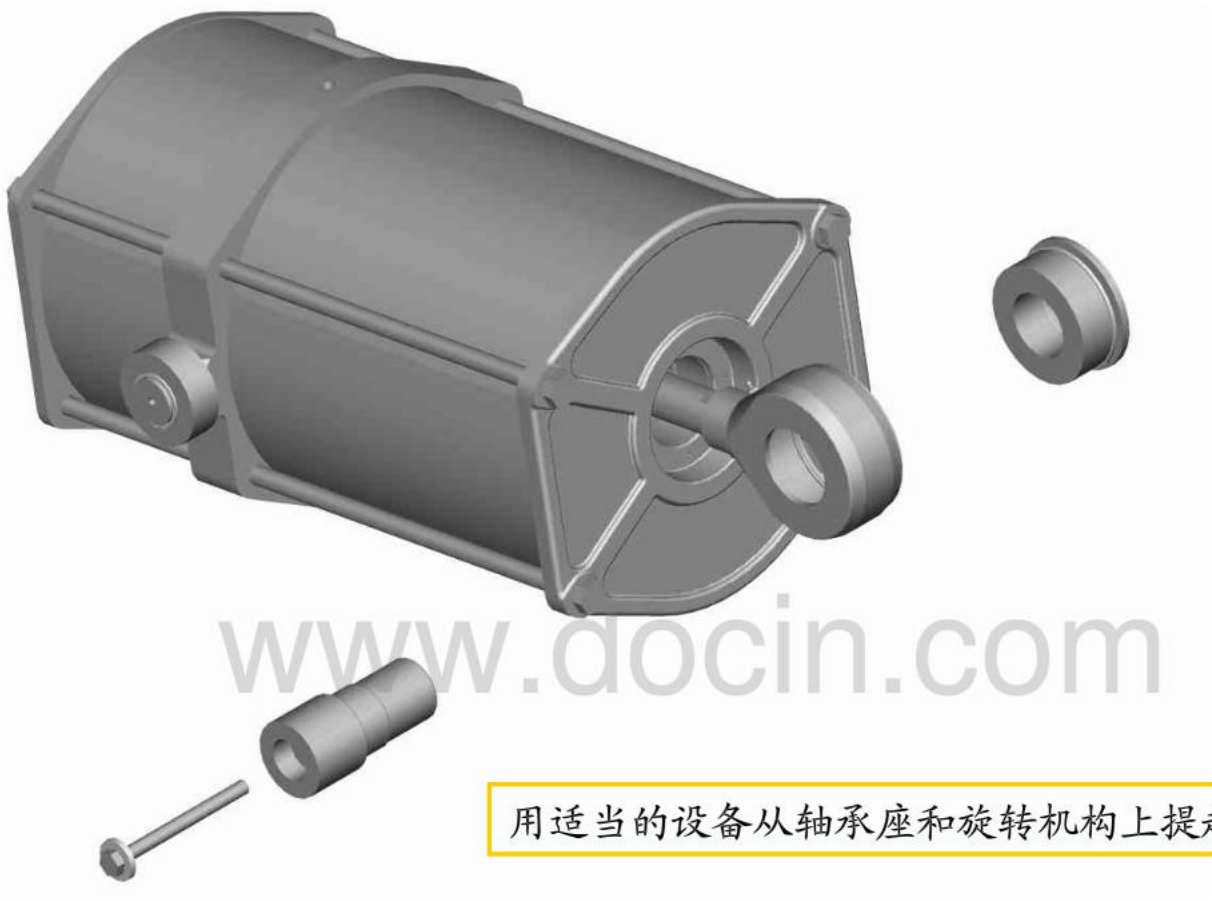
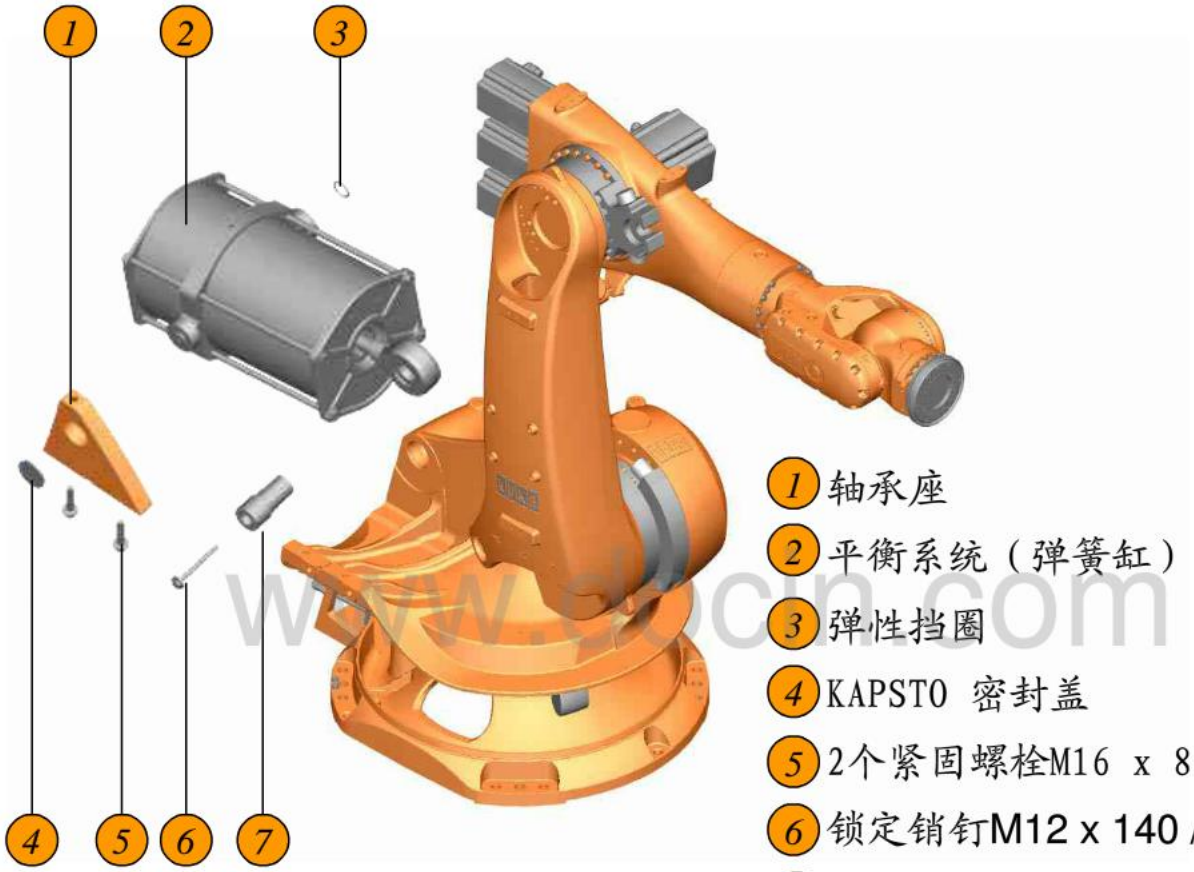


用适当的设备从轴承座和旋转机构上提起弹簧缸



1 轴承座

2 平衡系统（弹簧缸）

3 弹性挡圈

4 KAPSTO 密封盖

5 2个紧固螺栓M16 x 80 / 10.9

6 锁定销钉M12 x 140 / 8.8

7 梯状销

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腕部维护

5轴和6轴润滑油的更换

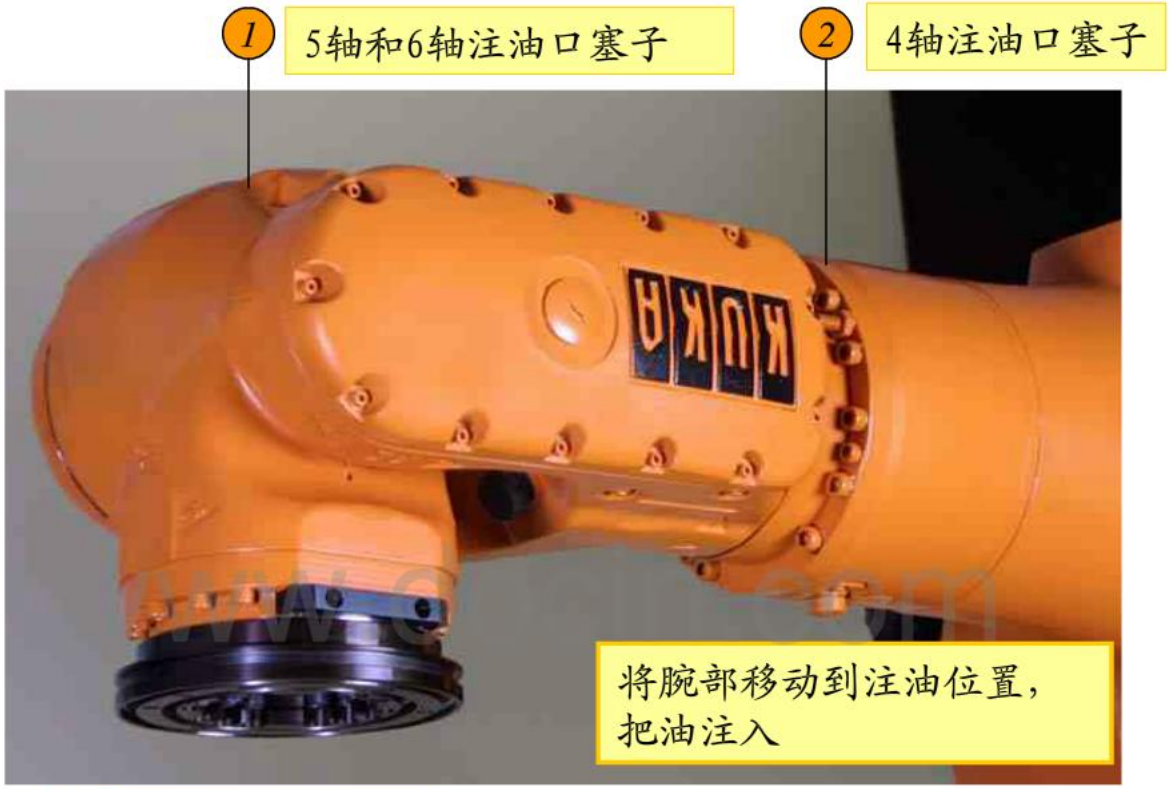
放油

1 5轴和6轴放油口塞子

2 4轴放油口塞子

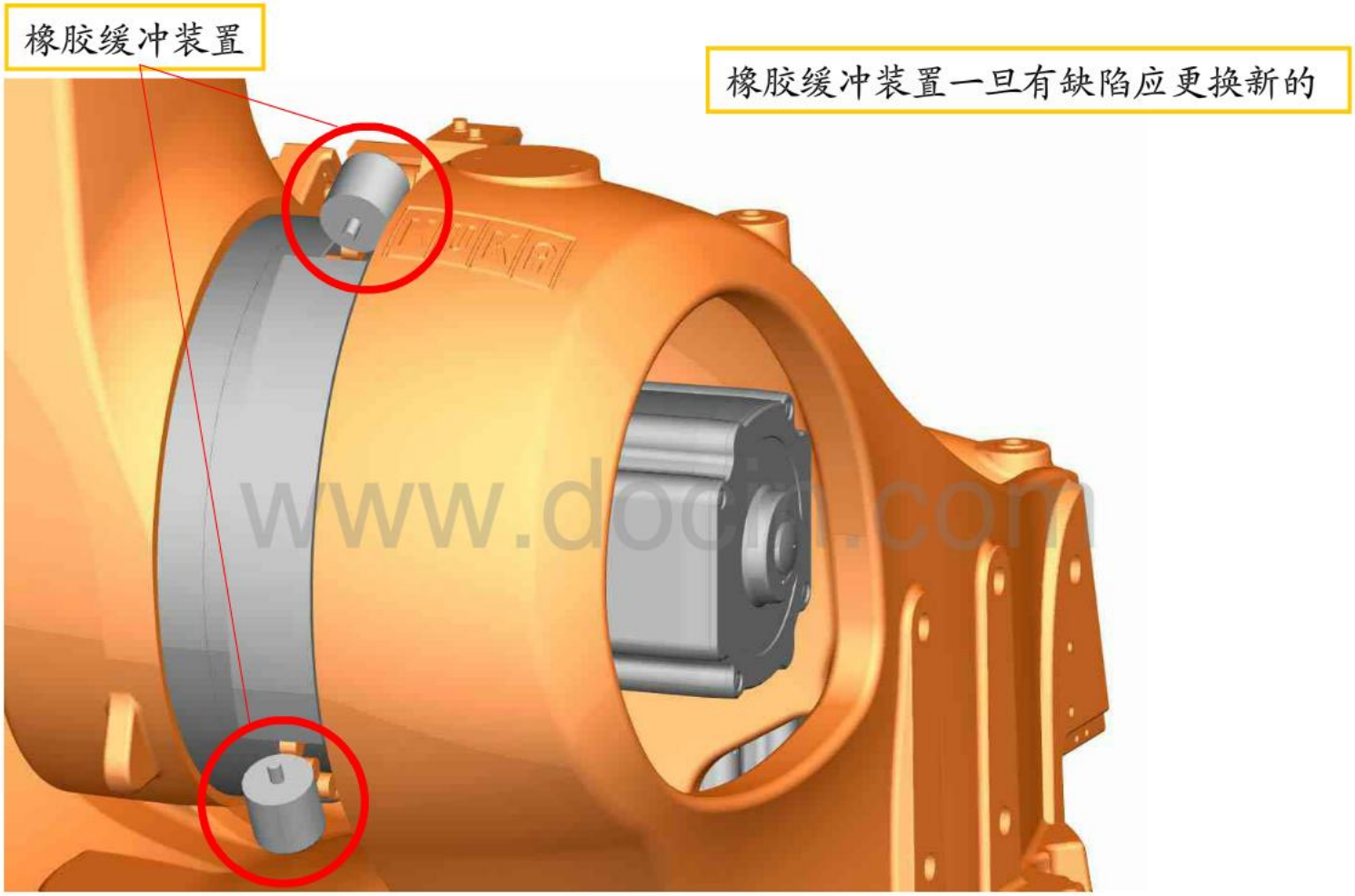
5轴和6轴润滑油的更换

注油

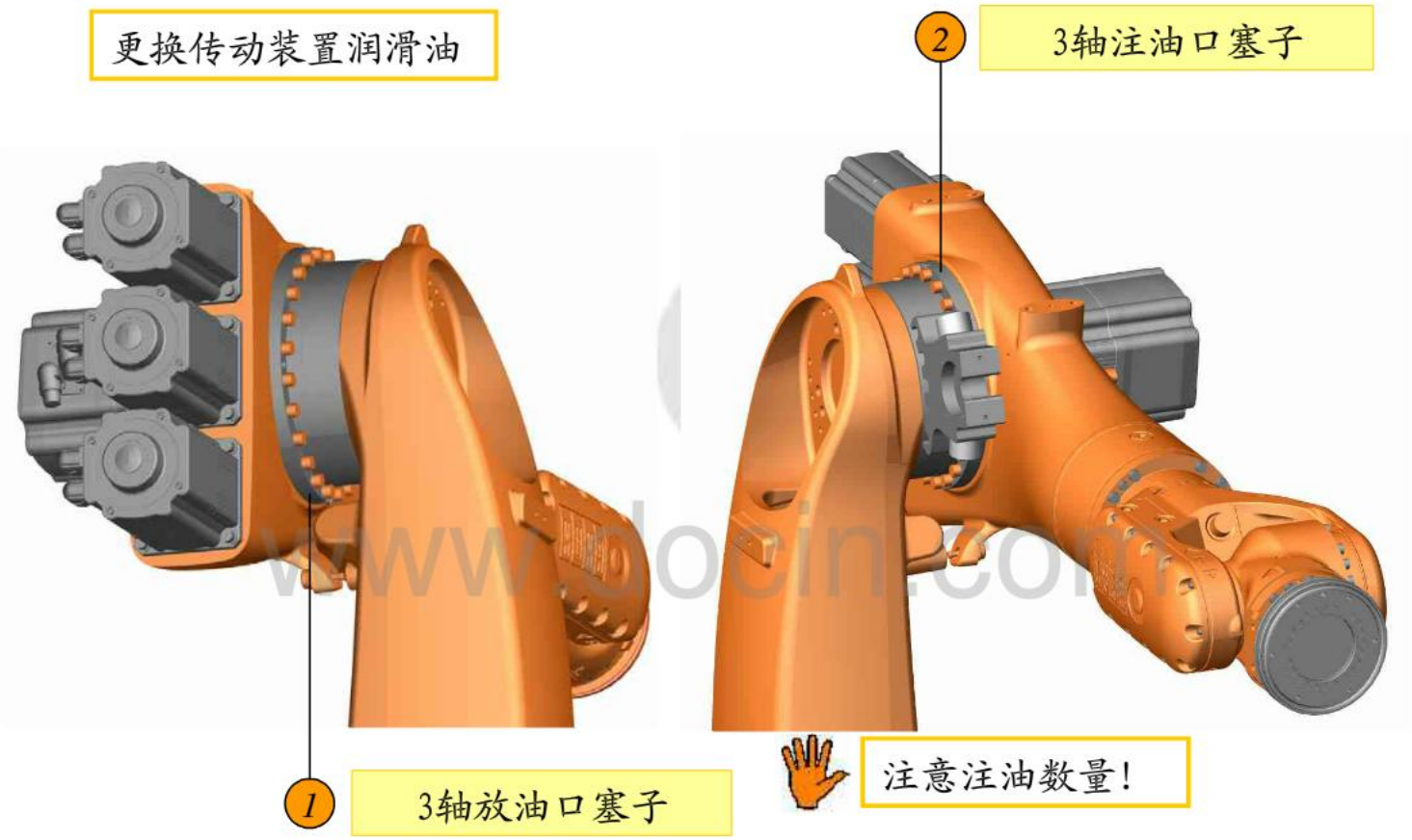


注意注油数量！

主要轴的维护



3轴润滑油的更换



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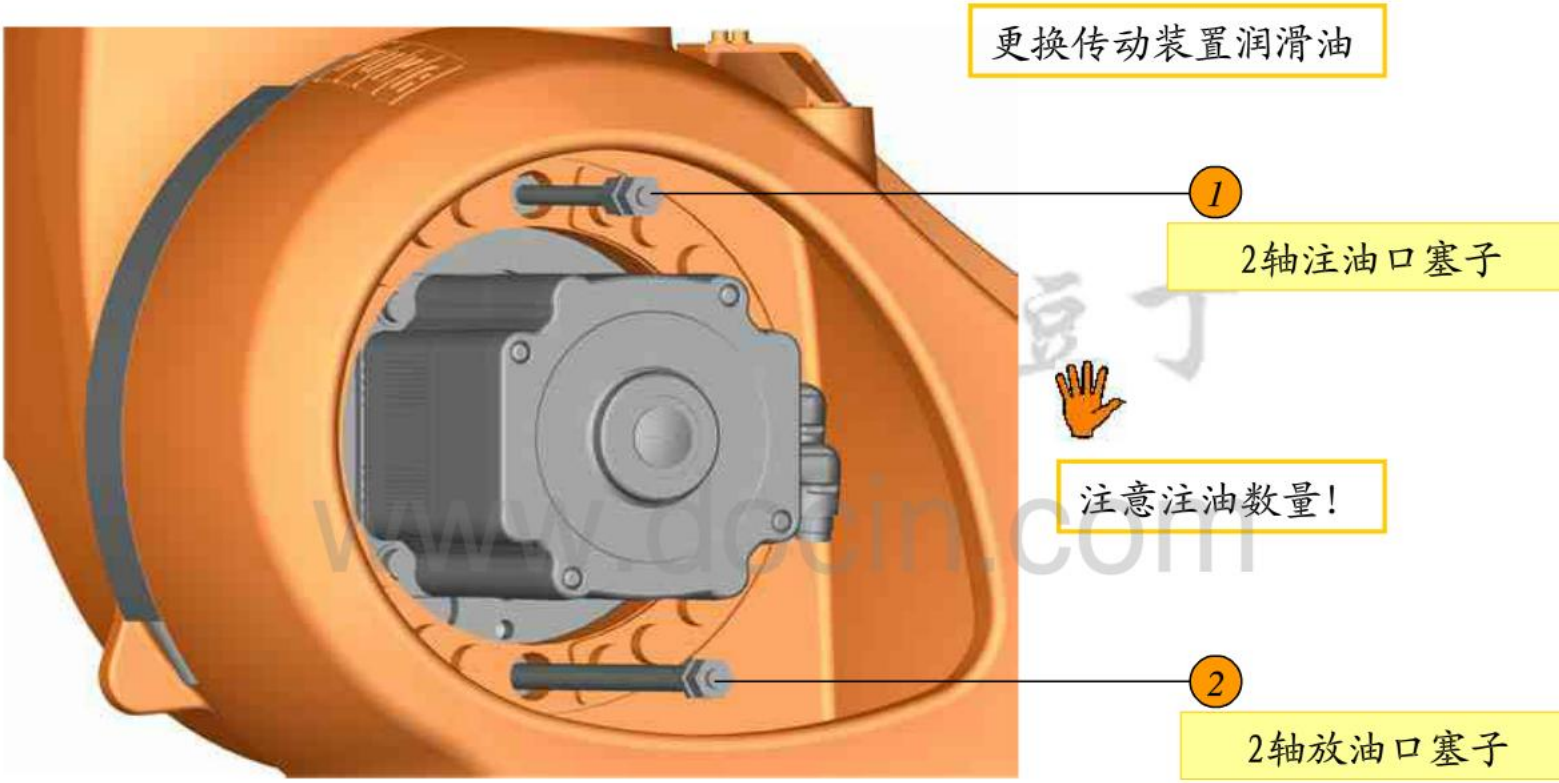
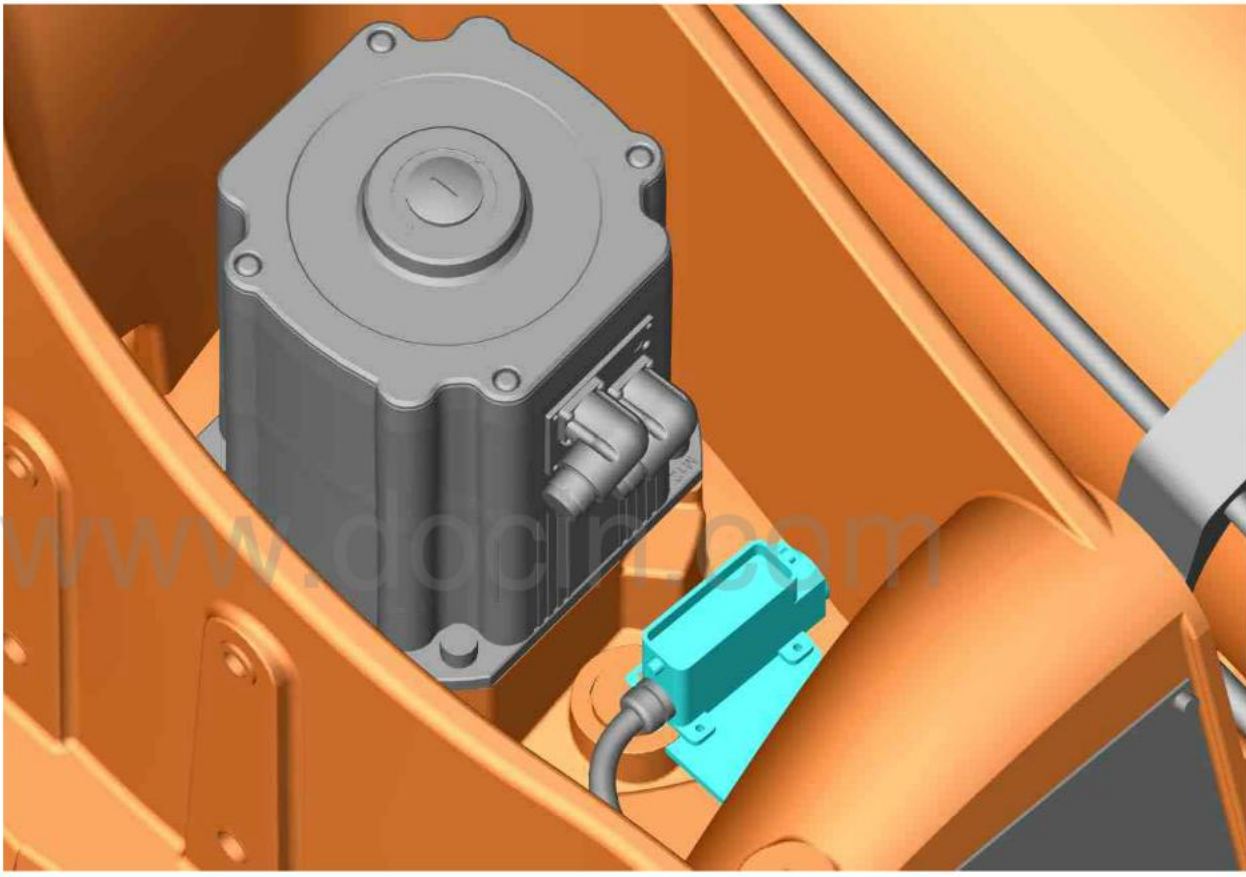
2轴润滑油的更换



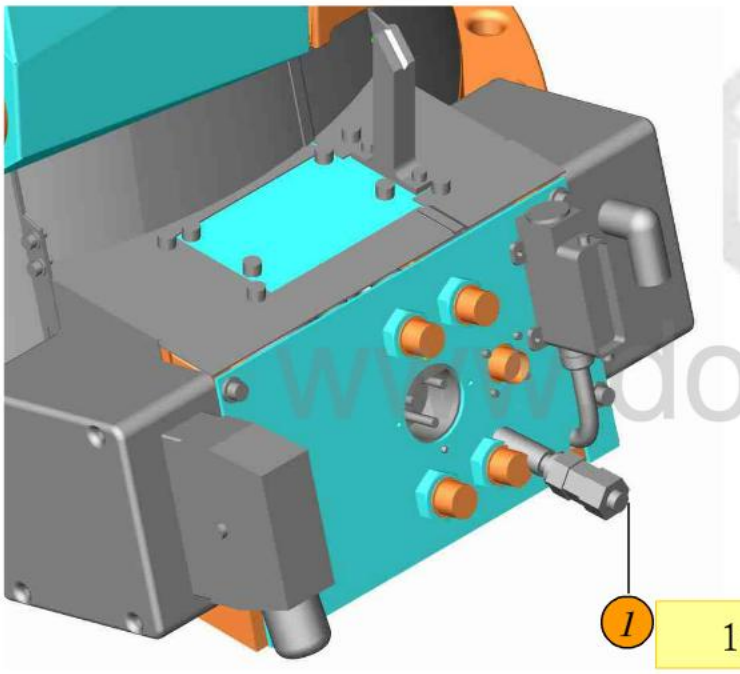
1轴润滑油的更换

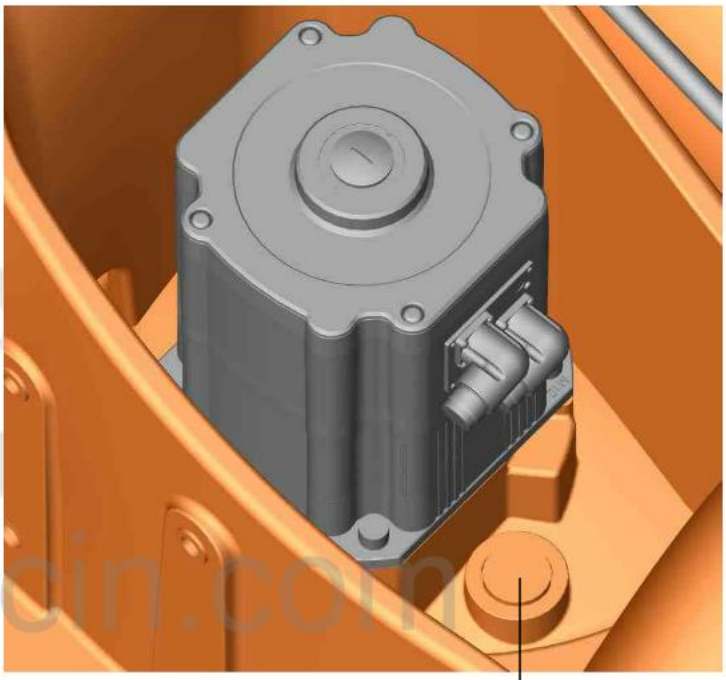
如果2轴有工作范围监视器，那么在更换润滑油之前必须先把安装在1轴上的连接部分拆下来。



更换传动装置润滑油

注意注油数量!





1轴放油口塞子

1轴注油口塞子

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