

Made in Ningbo: Key Base Components of the Beijing 2022 Winter Olympics Cauldron

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One highly anticipated part of the Beijing Winter Olympic Games opening ceremony – lighting of the Olympic flame – was unveiled as the two torchbearers placed the hand-held torch inside a giant snowflake-shaped cauldron. Rather than an inferno, there was only “micro-fire” unprecedentedly coming from a single torch.

随着最后一棒火炬手将火炬放入“雪花”中央,北京冬奥会开幕式最后一个惊喜揭晓,点火采用的“微火”方式,前所未有。

“This time the last two torchbearers didn't light up any new larger flames and the torch was directly set within the cauldron. Over the following month, it will burn in a low fire, conveying the low-carbon and environment-friendly concept.”

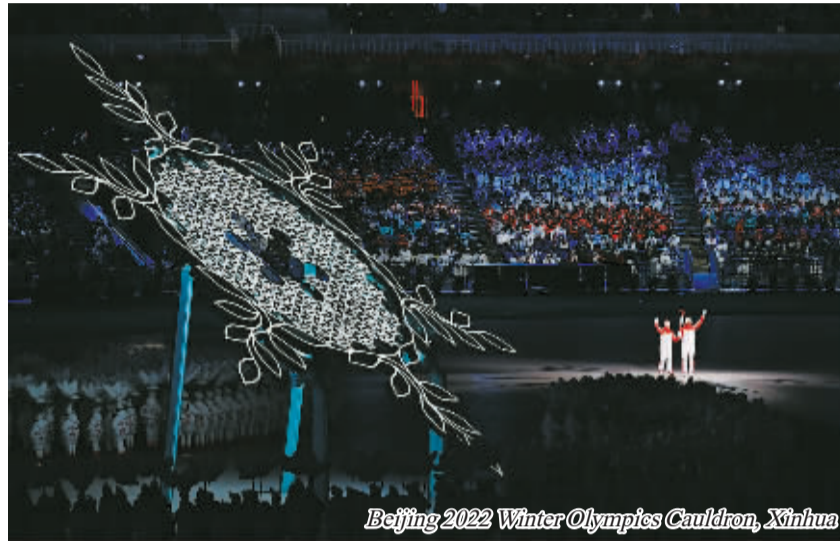
“这一次,最后一棒火炬不再需要去点什么,放在火炬台上,它就是火炬。接下来要持续燃烧一个多月的,将是这个小小的火苗,它传达着低碳环保的理念。”

“Like it or not, our design of the Olympic cauldron delivers a distinct idea: the cauldron represents the whole world, the cauldron ignition addresses an eco-friendly Olympics. This will become an iconic moment in the over 100-year history of the Olympic Games.”

“无论喜不喜欢,它传递的理念都如此清晰:火炬代表了全世界,点火是低碳环保的理念。这会成为奥运史上的经典瞬间。”

“Almost all the previous designs of the Olympic cauldron only symbolized the cultures and identities of the host countries themselves. This snowflake-shaped cauldron however comprises smaller snowflakes bearing participating countries' names. It has never been thought of in the past century.” The chief director Zhang Yimou introduced.

“以往几乎所有的火炬都是体现自



Beijing 2022 Winter Olympics Cauldron, Xinhua

己的文化和设计就可以了,只有我们的火炬写上了所有代表团的的名字,是全世界每一朵雪花融汇成的,这是百年来没有出现过的。”张艺谋说。

It is noted that the core ground base system of this Winter Olympics cauldron was designed and made by a Ningbo manufacturer, Zhejiang Dafeng Industry Co., Ltd.

而本届冬奥会主火炬地面核心装置系统,正是由来自宁波的浙江大丰实业股份有限公司设计打造的。

The system is composed of three major parts: the LED baseplate, auxiliary flipping lifts for the cauldron, and stair lifts.

主火炬地面装置系统由三部分构成:LED底盘、主火炬辅助翻转提升装置和台阶踏步升降装置。

The design of the Olympic cauldron pursued the theme of green and sustainable development. Clean hydrogen energy is used to support the flame, withstanding extremely cold weather and force-10 winds. Also, the core ground base system is made with eco-friendly materials and processes. The sub-system of flipping lifts include four sets of huge and sophisticated rack structures. With Dafeng's unique control system, the 9-meter-long racks can be lifted/lowered at different heights and rotated at different angles to complete complex curvilinear

movements. Accordingly, the Olympic cauldron is intelligently raised 8 meters high and further sent into the sky. It is an unprecedented initiative.

主火炬秉承绿色、可持续发展理念进行研发设计。主火炬燃料采用氢作为燃料,保证其在极寒天气中使用,可抗风10级。主火炬地面装置也全部采用环保材料和工艺进行设计制造。主火炬翻转提升装置驱动系统由4套庞大又精密的齿条机构组成,长达9米的齿条在大丰独有控制系统的精确控制下,升降不同高度旋转不同角度,完成复杂的曲线运动,以四两拨千斤的巧劲将主火炬以优美的弧线灵动举高8米,继而将主火炬凌空传送到高空,是一个史无前例的创举。

The stair lifts are designed with an ingenious flipping compensator, so that the 24 steps (symbolizing the Chinese 24 solar terms) can always automatically keep at the same level vertically and horizontally. Even if the stairs are in motion, the torchbearers can ascend steadily.

台阶踏步升降装置设计了巧妙的翻转补偿装置,让象征着中华24节气文化的24个台阶始终自动保持水平且高差一致,即便台阶处于运动状态,火炬手也能拾级而上。

The floor of the Bird's Nest (aka. National Stadium) is made up of large LED screens and is unable to bear large and heavy objects, while the core ground base system must be installed in the steel

frame of the lifting platform at the center of the Stadium, posing a major challenge.

鸟巢现场地面都是LED大屏,不能承受大件货物,地面核心装置系统要装在鸟巢中心区域升降台钢架中,对本次安装是一项重大挑战。

Dafeng innovatively used a 260-ton crane with a hoisting span of over 60 meters in diameter. Its creative construction plan of hoisting a single piece of core ground equipment into the central lifting platform for splicing and installation at the Bird's Nest's channel finally earned credit from the Organizing Committee, the supervision teams and experts.

大丰创新性地采用260吨吊车,吊装跨度直径可达60多米,在鸟巢通道处把地面核心装置设备单件吊入中心升降台进行拼接安装的施工方案,并获得奥组委、监理组及专家认可。

At the Games, Dafeng has also been responsible for supplying 75% of the spectator seats in the venues. In terms of cold resistance and flame retardancy, raw materials of these durable seats have reached an international advanced level. Moreover, the seats are recyclable and pollution-free after being crushed.

大丰还完成了2022北京冬奥会75%有观众席场馆的座椅系统,而座椅原料在耐寒、阻燃等方面都达到了国际领先水平,座椅使用年限长,废弃座椅也可以回收,粉碎后原料可回收再利用,对环境无污染。

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