

SPRING PLUNGERS

弹性定位柱塞 ▼



www.clamptek.com

catalogue 2016



YOUR COMPETENT PARTNER

您的可靠合作伙伴

Erwin Halder KG 是一间全球公司，位于德国南部。现代的机械、高素质的员工和 75 年的丰富经验让我们成为工业与贸易的理想合作伙伴。除了高的质量标准，我们高度重视客户的满意度与服务。

Erwin Halder KG is a global corporation located in southern Germany. Modern machinery, highly qualified employees and 75 years of experience make it an ideal partner for industry and trade. In addition to a very high standard of quality Erwin Halder KG attaches great importance to customer satisfaction and service.

1

如今我们与顾客正处于一个高度活跃和复杂的市场，这个市场要求我们适应性强，精确度高与生产效率高。

High flexibility, high precision and efficient production are the demands of a highly dynamic and complex market we and our customers are facing.

2

出于对高质量标准和目标导向的考虑，我们旨在保证产品能够得到最优利用，HALDER 坚定不移地为成为一名能够满足市场需求的可靠的合作伙伴而创建。

Due to our high quality standards and our target-oriented thinking aimed at ensuring an optimal utilization of our products, Halder is firmly established as a competent partner helping to meet market requirements.

3

75 年的丰富经验，全球 200 多名员工，精密的机械与各种各样的产品是确保 Halder 成为可靠并且能够同时满足不同客户需求的合作伙伴的首要条件。

75 years of experience, 200 employees worldwide, sophisticated machinery as well as a wide range of products are the essential prerequisites enabling us to rapidly and reliably fulfill the most diverse needs of our customers.

4

除了提供各种各样高质量的产品外，以顾客和售后服务为中心也同样重要。

Apart from offering a large variety of high-quality products, equal importance is attached to the rendition of customer-oriented and after-sales service.

5

由于对高素质成员的需求，我们为新成员们提供了极好的就业机会。实习生人数占员工比例近 10%。

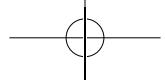
As this necessitates a high level of qualification among the members of staff, we offer excellent career opportunities to junior staff members. The share of employees accounted for by trainees amounts to approx. 10 %.

6

就全球范围而言，在德国生产高精度产品，对我们来说是一个每天都会遇到的挑战，而这得益于大家的智慧。

Precision made in Germany - a great challenge which we are meeting day by day on a world-wide scale thanks to our international knowledge.





關於嘉剛 INTRODUCTION

嘉剛的技术研发源於台湾，嘉刚总部位於台湾，生产基地设立於东莞。凭籍强大的产品开发、制造、销售能力，特别是夹具夹持元件领域获得客户对嘉刚品牌的认同与信赖，嘉刚人坚持不懈的辛勤努力，为中国的工业装备业作出卓越的贡献。

1974年由邱魏聪哲先生创立於台湾。1999年在东莞厚街镇创建生产工厂。2013年为扩大生产规模，工厂搬迁至东莞东城桑园工业区新厂区。嘉刚公司不仅生产时节夹钳，还重点投入开发高精密气油压缸、液压站，并将产品服务線延伸到代理盈锡精密锁定螺母、东培精密轴承、弘旺联轴器及德国 Halder 的弹性定位产品。

在品质方面，公司已建立起完整全面的品质保证、管理体系。

经过多年努力嘉刚逐步建立起一套系统的质量管理模式，不断的寻求合理有效的生产工艺、製造流程，以合理的成本製造出最好评的产品；嘉刚公司因了解客户对於品质的要求，除了在生产时即要求生产的精度与质量，另对於生产中及成品出货前也加强了半成品及成品的检验。

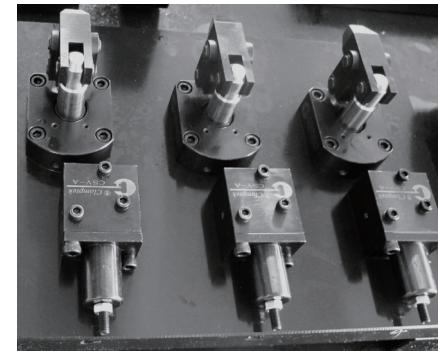
研发是未来持续发展的基础，嘉刚一直致力於研发，客户的需求就是嘉刚人努力的方向，嘉刚人不满足於引进国外成熟产品，更追求自行研发拥有自主知识产权，多年来嘉刚研发团队不断突破技术瓶颈，在获得市场认可之余同时亦获得多项专利。未来嘉刚将加大研发的投入，期望可不断提供产业界及客户充分多样的选择。

The technical R&D of Clamptek originated in Taiwan where its headquarter is situated. Clamptek has its production base located in Dongguan. Due to its strong power in product development, manufacturing and sales capacity, and gained the brand recognition and trust from clients. With perseverance and industry, Clamptek has made great contribution in the industrial equipment industry.

President Mike Tsung-Che Chiu Wei set up Taiwan CLAMPTEK ENTERPRISE CO., LTD. in 1974 and set up the factory in Houjie Town of Dongguan in 1999, in order to expand the production scale, the factories were transferred to the New Factory Area of Sangyuan Industrial Park of Dongcheng District of Dongguan City in 2013. Clamptek uses the clamps as the tools for clamping and fixing. It also efficiently organized the system of manual toggle clamps, pneumatic/hydraulic clamps, hydraulic power units and precision lock nut of Yinsh, precision bearing of TPI , coupling of HW, spring plungers of Halder all together.

In the aspect of quality, the company has set up a perfected quality management system. Clamptek has gradually set up a complete quality management system which works to perfect the production techniques and procedures and to manufacture eminent products within reasonable costs. Knowing the high quality requirement of clients, Clamptek not only demands the precision and quality in the production process, but reinforced the inspection of half and finished products during production and before shipment.

R&D is the base for further development. Being the pioneering brand in the clamp industry in mainland China, Clamptek devotes more energy to research and development, and the clients' demands has actually led the way for Clamptek. Clamptek not only imported the developed products from abroad, but strives to develop new products with intellectual property right. After years of researches and development, Clamptek has won market recognition and many patents. In the future, Clamptek will devote more time and energy to R&D, hoping to provide multiple product options for the market, to bring growing profit for the company, to contribute for the society and to benefit and share with employees.



FOUR MAJOR BUSINESS FIELDS OF CLAMPTEK

嘉剛的四大業務領域

1 时节夹钳系列

TOGGLE CLAMPS

2 气油压夹具夹持元件系列

PNEUMATIC & HYDRAULIC CLAMP SERIES

Hydraulic clamp series
Pneumatic clamp series

3 精密非标设备

PRECISION NON-STANDARD EQUIPMENTS

Hydraulic powered unit

4 高科技精密产品一级代理

AGENT OF HI-TECH PRECISION PRODUCTS

Taiwan Yinsh (YINSH) 精密锁定螺母
Taiwan Dongpei (TPI) 精密轴承
Taiwan HW 弘旺联轴器
Germany Halder 弹性定位柱塞



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EH 22030.

定位柱，有球形和内六角
SPRING PLUNGERS, WITH BALL AND INTERNAL HEXAGON

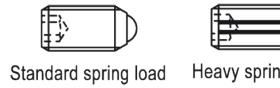


材料
Material:

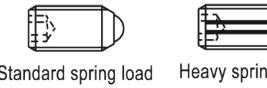
本体：切削钢，染黑，不锈钢 1.4305
珠子：轴承钢，硬化，不锈钢，硬化。
弹簧：不锈钢
Body: Free cutting steel, blackened. Stainless steel 1.4305
Ball: Ball-bearing steel, hardened. Stainless steel, hardened
Spring: Stainless steel

特性
Characteristic:

标准弹簧荷重：无标示



重弹簧荷重：双线标示



Standard spring load: no marking

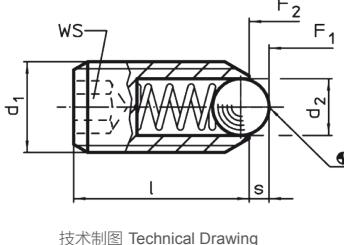
Heavy spring load: marked with two lines

注意
Note:

适用于定位、供压或顶举。

温度范围可至 + 250 °C。

To be used for locating or for applying pressure, as a detent or for ejection. Temperature range up to 250°C .



技术制图 Technical Drawing

参考品号 Ref. No.	d_1	d_2	l	s	WS	彈簧荷重 Spring load F_1 N≈*	彈簧荷重 Spring load F_2 N≈*	$\frac{g}{g}$	Finish
22030.0003	M3	1.5	8	0.4	1.5	3	4.5	0.3	切削钢
22030.0004	M4	2.5	12	0.8	2	8.5	14	0.7	标准弹簧荷重
22030.0005	M5	3	14	0.9	2.5	8	14	1.2	free cutting steel,
22030.0006	M6	3.5	15	1	3	11	18	1.8	standard
22030.0008	M8	4.5	18	1.5	4	18	31	3.9	spring load
22030.0010	M10	6	23	2	5	24	45	8.1	
22030.0012	M12	8	26	2.5	6	26	49	13	
22030.0016	M16	10	33	3.5	8	41	86	32	
22030.0020	M20	12	43	4.5	10	56	111	66	
22030.0024	M24	15	48	5.5	12	81	151	106	
22030.0045	M5	3	14	0.9	2.5	15	22	1.2	
22030.0046	M6	3.5	15	1	3	19	28	1.8	切削钢
22030.0048	M8	4.5	18	1.5	4	36	62	4.1	重弹簧荷重
22030.0050	M10	6	23	2	5	57	104	8.2	free cutting steel,
22030.0052	M12	8	26	2.5	6	61	110	13	heavy spring load
22030.0056	M16	10	33	3.5	8	68	142	32	
22030.0060	M20	12	43	4.5	10	84	166	66	
22030.0064	M24	15	48	5.5	12	127	237	106	
22030.0203	M3	1.5	8	0.4	1.5	3	4.5	0.28	
22030.0204	M4	2.5	12	0.8	2	8.5	14	0.8	
22030.0205	M5	3	14	0.9	2.5	8	14	1.3	不锈钢
22030.0206	M6	3.5	15	1	3	11	18	1.9	标准弹簧荷重
22030.0208	M8	4.5	18	1.5	4	18	31	4.1	stainless steel,
22030.0210	M10	6	23	2	5	24	45	8.2	standard
22030.0212	M12	8	26	2.5	6	26	49	13	spring load
22030.0216	M16	10	33	3.5	8	41	86	32	
22030.0220	M20	12	43	4.5	10	56	111	67	
22030.0224	M24	15	48	5.5	12	81	151	107	
22030.0245	M5	3	14	0.9	2.5	15	22	1.2	
22030.0246	M6	3.5	15	1	3	19	28	1.9	不锈钢
22030.0248	M8	4.5	18	1.5	4	36	62	4.2	重弹簧荷重
22030.0250	M10	6	23	2	5	57	104	8.2	stainless steel,
22030.0252	M12	8	26	2.5	6	61	110	13	heavy spring load
22030.0256	M16	10	33	3.5	8	68	142	32	
22030.0260	M20	12	43	4.5	10	84	166	66	
22030.0264	M24	15	48	5.5	12	127	237	107	

特殊的加工欢迎洽询
螺纹锁固，欢迎洽询，请参考附件 - 技术数据 -
索引阻力的计算，请参考附件 - 技术数据
弹簧的范围和力量经准确的测试。
>>Special types upon request. <<
Thread lock up request, please refer to appendix -
Technical Data -
For calculation of indexing resistance please refer
to appendix - Technical Data -
Spring range and forces are precisely tested.

* 统计平均值 * statistical average value

Clamptek®

EH 22030.

定位柱，有螺栓和内六角
SPRING PLUNGERS, WITH PIN AND INTERNAL HEXAGON



特性
Characteristic:

本体：切削钢，染黑，不锈钢 1.4305

梢子：切削钢，硬化，染黑，不锈钢 1.4305

弹簧：不锈钢

Body: Free cutting steel, blackened. Stainless steel 1.4305

Pin: Free cutting steel, hardened, blackened. Stainless steel 1.4305

Spring: Stainless steel

注意
Note:

适用于定位、供压或顶举。

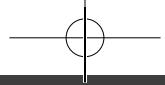
温度范围可至 + 250 °C。

To be used for locating or for applying pressure, as a detent or for ejection. Temperature range up to 250°C .

特殊的加工欢迎洽询
螺纹锁固，欢迎洽询，请参考附件 - 技术数据 -
弹簧的范围和力量经准确的测试。
>>Special types upon request. <<
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Spring range and forces are precisely tested.

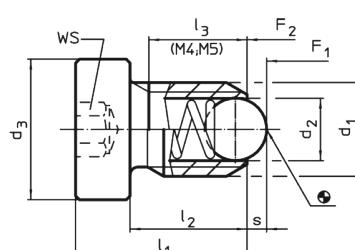
* 统计平均值 * statistical average value

HALDER
NORM+TECHNIK



EH 22030.

定位柱，有球、头和内六角形
SPRING PLUNGERS, WITH BALL,
HEADED, INTERNAL HEXAGON



技术制图 Technical Drawing

材料
Material:

本体：切削钢，染黑。不锈钢 1.4305
珠子：轴承钢，硬化。不锈钢，硬化的。
弹簧：不锈钢
Body: Free cutting steel, blackened. Stainless steel 1.4305
Ball: Ball-bearing steel, hardened. Stainless steel, hardened
Spring: Stainless steel

注意
Note:

适用于定位、供压或顶举。精密的旋入深度由于有头部 (l_3)。
温度范围可至 + 250 °C.
To be used for locating or for applying pressure, as a detent or for
ejection. Precise screwing depth due to head (respect l_3 for M4/M5)
Temperature range up to 250 °C.

EH 22040.

定位柱，塑料
SPRING PLUNGERS, PLASTIC



材料
Material:

本体：得林蓝塑料 (POM)
珠子：不锈钢，硬化。得林白塑料 (POM)
弹簧：不锈钢
Body: Thermoplastic POM, blue
Ball: Stainless steel, hardened. Thermoplastic (POM), white
Spring: Stainless steel

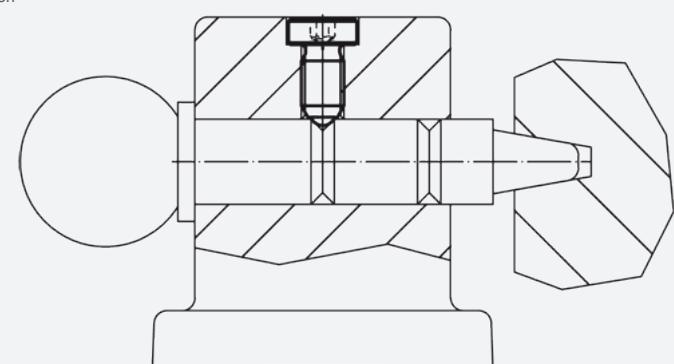
注意
Note:

用在固定或用在供压或顶举。
温度范围从 -30 °C 至 + 50 °C.
To be used for locating or for applying pressure, as a detent or for
ejection. Temperature range from -30°C up to +50°C

参考品号 Ref. No.	d_1	d_2	d_3	l_1	l_2	l_3	s	WS	弹簧荷重 Spring load		弹簧荷重 Spring load		Finish
									F_1 N≈*	F_2 N≈*	g	g	
22030.0930	M4	2.5	6	12	9	7.5	0.8	2	8	14	1		切削钢
22030.0931	M5	3	8	14	10	8.2	0.9	2.5	8	14	2.3		标准弹簧荷重
22030.0932	M6	3.5	10	15	10	-	1	3	11	18	3.9		free cutting steel, standard
22030.0933	M8	4.5	13	18	12.5	-	1.5	4	18	31	7.7		spring load
22030.0934	M10	6	16	23	17	-	2	5	24	45	14		
22030.0935	M12	8	18	26	19	-	2.5	6	26	49	21		
22030.0940	M4	2.5	6	12	9	7.5	0.8	2	8	14	1.1		不锈钢
22030.0941	M5	3	8	14	10	8.2	0.9	2.5	8	14	2.3		标准弹簧荷重
22030.0942	M6	3.5	10	15	10	-	1	3	11	18	3.9		stainless steel, standard
22030.0943	M8	4.5	13	18	12.5	-	1.5	4	18	31	7.8		spring load
22030.0944	M10	6	16	23	17	-	2	5	24	45	14		
22030.0945	M12	8	18	26	19	-	2.5	6	26	49	21		

* 统计平均值 * statistical average value

应用实例 Application



特殊的加工欢迎洽询
螺纹锁固，欢迎洽询，请参考附件 - 技术数据 -
索引阻力的计算，请参考附件 - 技术数据
弹簧的范围和力量经准确的测试。

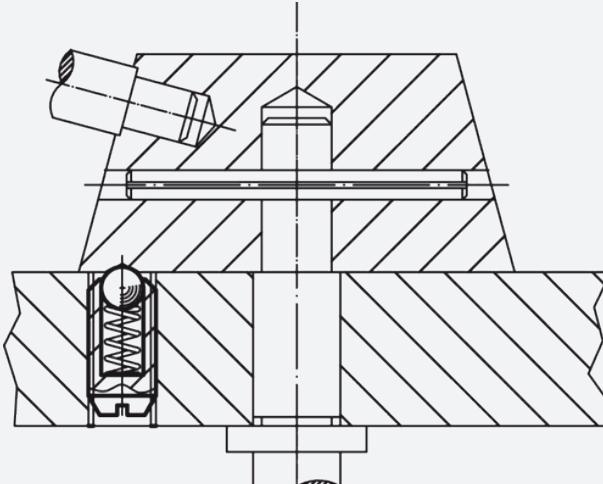
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For calculation of indexing resistance please refer
to appendix - Technical Data -
Spring range and forces are precisely tested.

Clamptek®

特殊的加工欢迎洽询
螺纹锁固，欢迎洽询，请参考附件 - 技术数据 -
索引阻力的计算，请参考附件 - 技术数据
弹簧的范围和力量经准确的测试。

>>>Special types upon request. <<<
Thread lock up request, please refer to appendix -
Technical Data -
For calculation of indexing resistance please refer
to appendix - Technical Data -
Spring range and forces are precisely tested.

应用实例 Application



材料
Material:

本体：得林蓝塑料 (POM)
珠子：不锈钢，硬化。得林白塑料 (POM)
弹簧：不锈钢
Body: Thermoplastic POM, blue
Ball: Stainless steel, hardened. Thermoplastic (POM), white
Spring: Stainless steel

注意
Note:

用在固定或用在供压或顶举。
温度范围从 -30 °C 至 + 50 °C.
To be used for locating or for applying pressure, as a detent or for
ejection. Temperature range from -30°C up to +50°C

参考品号 Ref. No.	d_1	d_2	l	s	n	弹簧荷重 Spring load		弹簧荷重 Spring load		Finish
						F_1 N≈*	F_2 N≈*	g	g	
22040.0006	M6	3.5	14	0.9	1	12	17	0.6		珠子材质为不锈钢 ball from stainless steel
22040.0008	M8	5	16	1.5	1.2	20	35	1.3		
22040.0010	M10	6	19	1.9	1.5	25	45	2.6		
22040.0406	M6	3.5	14	0.9	1	12	17	0.5		珠子材质为得林塑料 ball from thermoplastic
22020.0408	M8	5	16	1.5	1.2	20	35	1		
22040.0410	M10	6	19	1.9	1.5	25	45	1.8		

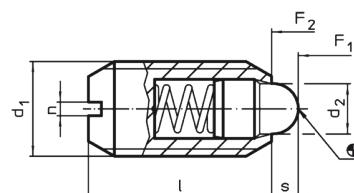
* 统计平均值 * statistical average value



EH 22050.

定位柱，有螺栓和沟槽

SPRING PLUNGERS, WITH PIN AND SLOT



技术制图 Technical Drawing

材料
Material:

本体：切削钢，染黑，不锈钢 1.4305
梢子：切削钢，硬化，染黑，不锈钢 1.4305
弹簧：不锈钢
Body: Free cutting steel, blackened. Stainless steel 1.4305
Pin: Free cutting steel, hardened, blackened. Stainless steel 1.4305
Spring: Stainless steel

特性
Characteristic:

标准弹簧荷重：无标示
重弹簧荷重：双线标示
Standard spring load: no marking
Heavy spring load: marked with two lines



注意
Note:

适用于定位、供压或顶举。
温度范围可至 + 250 °C。
To be used for locating or for applying pressure, as a detent or for ejection. Temperature range up to 250 °C.

参考品号 Ref. No.	d ₁	d ₂	l	s	n	弹簧荷重 Spring load F ₁ N≈*	弹簧荷重 Spring load F ₂ N≈*	Finish
						Unit:mm	g	
22050.0104	M4	1.8	9	1.5	0.6	4.5	12.5	0.4
22050.0105	M5	2.4	12	2	0.8	5	13	1.1
22050.0106	M6	2.7	14	2	1	6	17	1.8
22050.0108	M8	3.8	16	2	1.2	16	33	3.7
22050.0110	M10	4.5	19	2.5	1.5	19	42	7.1
22050.0112	M12	6.2	22	3.5	2	22	57	11
22050.0116	M16	8.5	24	4.5	2	38	78	23
22050.0120	M20	10	30	6.5	2.5	39	81	46
22050.0124	M24	13	34	8	3	72	155	73

22050.0306	M6	2.7	14	2	1	11	25	1.8
22050.0308	M8	3.8	16	2	1.2	23	59	3.8
22050.0310	M10	4.5	19	2.5	1.5	20	54	7
22050.0312	M12	6.2	22	3.5	2	38	96	11
22050.0316	M16	8.5	24	4.5	2	50	100	23
22050.0320	M20	10	30	6.5	2.5	52	133	46
22050.0324	M24	13	34	8	3	91	223	74

22050.0504	M4	1.8	9	1.5	0.6	4.5	12.5	0.6
22050.0505	M5	2.4	12	2	0.8	5	13	1.3
22050.0506	M6	2.7	14	2	1	6	17	2
22050.0508	M8	3.8	16	2	1.2	16	33	3.9
22050.0510	M10	4.5	19	2.5	1.5	19	42	7.2
22050.0512	M12	6.2	22	3.5	2	22	57	11
22050.0516	M16	8.5	24	4.5	2	38	78	23
22050.0520	M20	10	30	6.5	2.5	39	81	47
22050.0524	M24	13	34	8	3	72	155	74

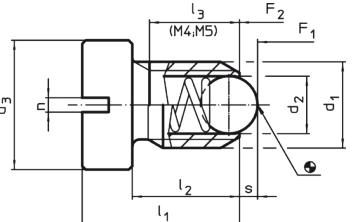
特殊的加工欢迎洽询
索引阻力的计算，请参考附件 - 技术数据
弹簧的范围和力量经准确的测试。
>>>Special types upon request. <<
Thread lock up request, please refer to appendix - Technical Data -
Spring range and forces are precisely tested.

* 统计平均值 * statistical average value

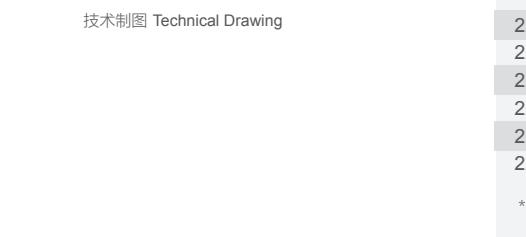
EH 22050.

定位柱，有头，有球和槽

SPRING PLUNGERS HEADED, WITH BALL AND SLOT



技术制图 Technical Drawing



技术制图 Technical Drawing

材料
Material:

本体：切削钢，染黑，不锈钢 1.4305
珠子：轴承钢，硬化，不锈钢，硬化。
弹簧：不锈钢
Body:Free cutting steel, blackened. Stainless steel 1.4305
Ball: Ball-bearing steel, hardened. Stainless steel, hardened
Spring: Stainless steel

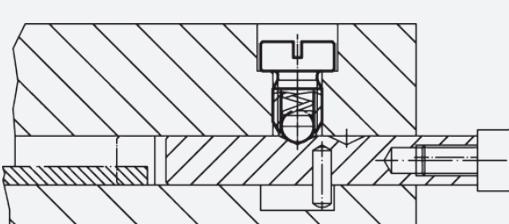
注意
Note:

用在定位、供压或提举。精密的旋入深度由于有头部(l₃)。
温度范围可至 + 250 °C。
To be used for locating or for applying pressure, as a detent or for ejection. Precise screwing depth due to head(respect l₃ for M4/M5).Temperature range up to 250 °C

参考品号 Ref. No.	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃ (M4,M5)	s	n	弹簧荷重 Spring load F ₁ N≈*	弹簧荷重 Spring load F ₂ N≈*	Finish
									g	g	
22050.0930	M4	2.5	6	9.5	6.5	5	0.8	0.6	8	14	0.92
22050.0931	M5	3	8	12.5	8.5	6.7	0.9	0.8	8	14	2.1
22050.0932	M6	3.5	10	14	9	-	1	1	11	18	3.7
22050.0933	M8	4.5	13	16.5	11	-	1.5	1.2	18	31	7.5
22050.0934	M10	6	16	20	14	-	2	1.5	24	45	14
22050.0935	M12	8	18	22	15	-	2.5	2	26	49	19
22050.0940	M4	2.5	6	9.5	6.5	5	0.8	0.6	8	14	1.2
22050.0941	M5	3	8	12.5	8.5	6.7	0.9	0.8	8	14	2.4
22050.0942	M6	3.5	10	14	9	-	1	1	11	18	3.9
22050.0943	M8	4.5	13	16.5	11	-	1.5	1.2	18	31	7.9
22050.0944	M10	6	16	20	14	-	2	1.5	24	45	14
22050.0945	M12	8	18	22	15	-	2.5	2	26	49	20

* 统计平均值 * statistical average value

应用实例 Application



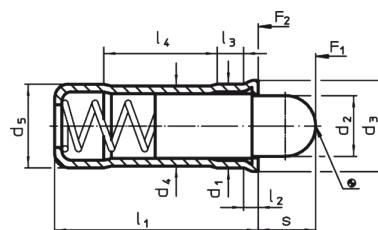
特殊的加工欢迎洽询
螺纹锁固，欢迎洽询，请参考附件 - 技术数据 -
索引阻力的计算，请参考附件 - 技术数据 -
弹簧的范围和力量经准确的测试。
>>>Special types upon request. <<
Thread lock up request, please refer to appendix - Technical Data -
For calculation of indexing resistance please refer to appendix - Technical Data -
Spring range and forces are precisely tested.



EH 22080.

定位柱，光滑，附环与螺丝

SPRING PLUNGERS, SMOOTH,
WITH COLLAR AND PIN



技术制图 Technical Drawing

材料
Material:

本体：不锈钢 1.4303
梢子：不锈钢 1.4305。得林白塑料 (POM)
弹簧：不锈钢
Body: Stainless steel 1.4303.
Pin: Stainless steel 1.4305. Thermoplastic (POM), white
Spring: Stainless steel

注意
Note:

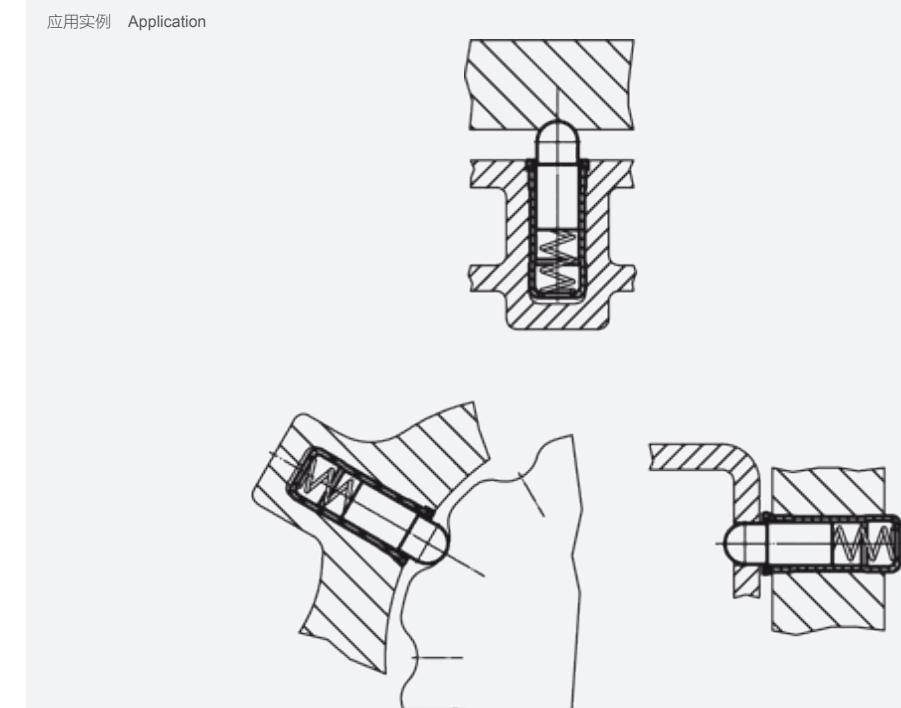
用在定位、固定(组立支撑)、供压,或提举(止动衰减零件)
 d_1 定位孔公差为 H7。

To be used for locating, tightening as an assembly support,
for applying pressure, as a detent, for ejection or as a shock absorb.
A tolerance of H7 is recommended for the locating hole of d_1 .

Unit:mm

参考品号 REF. No.	d_1 ± 0.04	d_2	d_3	d_4 ± 0.04	d_5 \approx	l_1 \approx	l_2 \approx	l_3 \approx	l_4 \approx	s	max $^{\circ}\text{C}$	彈簧荷重 Spring load F_1 $\text{N} \approx ^{*}$		Finish	
22080.0104	4	2.8	4.6	3.85	4	10.7	0.9	1.8	5.6	2.7	+250	3	8.2	0.7	本体和梢子的材质均为不锈钢 body and pin from stainless steel
22080.0105	5	3.8	5.6	4.85	5	12	0.9	2.1	6	4	+250	3.3	9	1.2	
22080.0106	6	4.8	6.5	5.85	6	15	1	2.3	8.2	5.5	+250	6.1	12	2.2	
22080.0108	8	6.2	8.5	7.55	8	18	1.1	2.9	9.5	6.5	+250	9	20.1	4.2	
22080.0110	10	8.1	11	9.55	10	26	1.5	4.2	14.3	8	+250	16.2	29	9	
22080.0124	4	2.8	4.6	3.85	4	10.7	0.9	1.8	5.6	2.7	-30/+50	3	8.2	0.5	本体为不锈钢，梢子为得林塑胶 body from stainless steel pin from thermoplastic
22080.0125	5	3.8	5.6	4.85	5	12	0.9	2.1	6	4	-30/+50	3.3	9	0.8	
22080.0126	6	4.8	6.5	5.85	6	15	1	2.3	8.2	5.5	-30/+50	6.1	12	1.3	
22080.0128	8	6.2	8.5	7.55	8	18	1.1	2.9	9.5	6.5	-30/+50	9	20.1	2.5	
22080.0130	10	8.1	11	9.55	10	26	1.5	4.2	14.3	8	-30/+50	16.2	29	5	

* 统计平均值 * statistical average value



特殊的加工欢迎洽询

弹簧的范围和力量经准确的测试。

>>>Special types upon request. <<<

Spring range and forces are precisely tested.

Clamptek®

EH 22080.

定位柱，光滑，无环

SPRING PLUNGERS, SMOOTH,
WITHOUT COLLAR



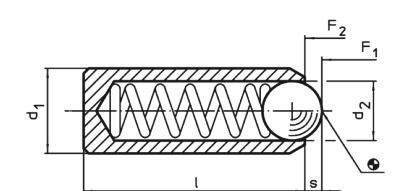
材料
Material:

本体：不锈钢 1.4305
珠子：不锈钢，硬化
弹簧：不锈钢
Body: Stainless steel 1.4305.
Ball: Stainless steel, hardened.
Spring: Stainless steel

注意
Note:

用在定位、供压或提举。
定位孔必须可以适用在各种个别的例子。我们建议使用 F8 配合公差尺寸
在接合连结, H9 在皱褶连结。
温度范围最高至 250°C。

To be used for locating or for applying pressure, as a detent or for
ejection. The locating hole has to be adapted to each individual
application case. We recommend an F8 size location hole for easy
assembly and a H9 size when tight fit is required. Temperature range
up to 250°C.

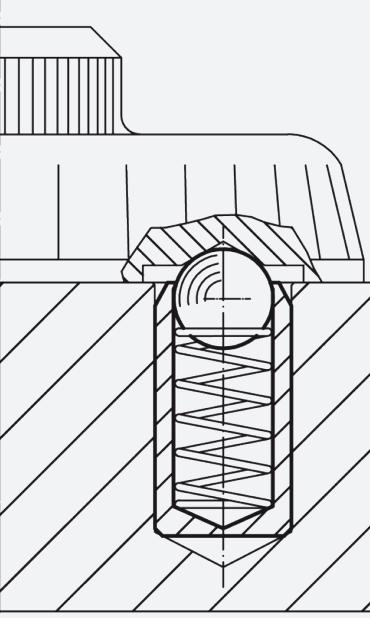


技术制图 Technical Drawing

参考品号 REF. No.	d_1 ± 0.04	d_2	l	s	彈簧荷重 Spring load F_1 $\text{N} \approx ^{*}$	彈簧荷重 Spring load F_2 $\text{N} \approx ^{*}$	Finish
22080.0306	2	1	3.5	0.3	0.8	1.5	0.1
22080.0308	2.5	1.5	5	0.4	2.8	4.7	0.2
22080.0310	3	2	7	0.65	4.5	7.5	0.4
22080.0312	3.5	2.5	9	0.8	6	14.5	0.6
22080.0315	4	3	11	0.9	8	14	0.8
22080.0317	4.5	3.2	12	0.95	9.5	16.5	1.1
22080.0320	5	3.5	13	1	11	18	1.5
22080.0322	5.5	4	14	1.2	15.5	25	1.9
22080.0325	6	4.5	15	1.5	18	31	2.3

* 统计平均值 * statistical average value

应用实例 Application



特殊的加工欢迎洽询

弹簧的范围和力量经准确的测试。

>>>Special types upon request. <<<

Spring range and forces are precisely tested.

HALDER
NORM+TECHNIK



EH 22090.

定位柱，两端
SPRING PLUNGERS,
DOUBLE ENDED

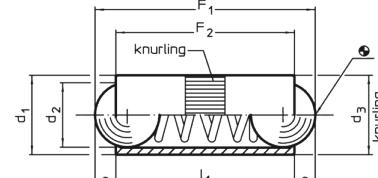


材料
Material:

本体: 黄铜
珠子: 不锈钢, 硬化
弹簧: 不锈钢
Body: Brass
Ball: Stainless steel, hardened.
Spring: Stainless steel

注意
Note:

适用于定位及固定, 以及作为电气接点。
To be used for locating and securing, as well as electric connection.

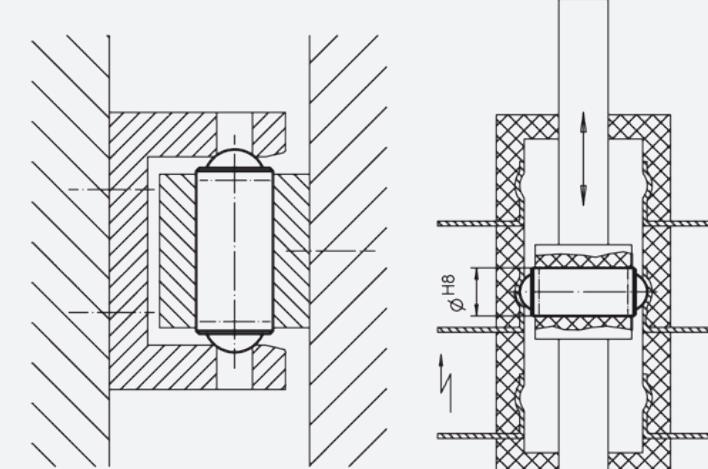


技术制图 Technical Drawing

参考品号 REF. No.	d_1 h10	d_2	d_3 ± 0.05	l_1	s	弹簧荷重 Spring load		$\frac{g}{\text{N/mm}}$
						F_1 N \approx *	F_2 N \approx *	
22090.0025	2.5	2	2.52	5.3	0.65	1.3	2.5	0.22
22090.0030	3	2.5	3.02	7.3	0.8	2	4.5	0.34
22090.0040	4	3	4.03	9	0.9	2.5	7.5	0.65
22090.0050	5	4	5.03	10.8	1.2	3.5	8	1.27
22090.0060	6	5	6.03	12.6	1.6	3.5	10.5	1.99
22090.0070	7	6	7.03	14	2	4	12	3
22090.0080	8	6.5	8.03	18	2.1	6	15	5.1

* 统计平均值 * statistical average value

应用实例 Application



特殊的加工欢迎洽询。
弹簧的范围和力量经准确的测试。
>>>Special types upon request. <<<
Spring range and forces are precisely tested.

EH 22100.

弹簧本体
SPRING BODIES

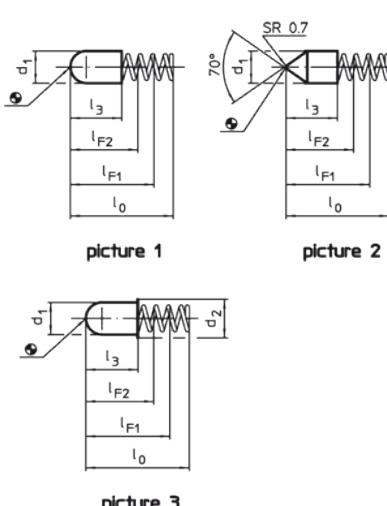


材料
Material:

本体: 钢, 镀镍。不锈钢 A2。黄铜, 镀镍。
弹簧: 不锈钢 1.4310
Body: Steel, nickel-plated. Stainless steel A2. Brass, nickel-plated.
Spring: Stainless steel 1.4310

注意
Note:

适用于定位。
温度范围可达 + 250 °C。
To be used for locating.
Temperature range up to 250 °C.

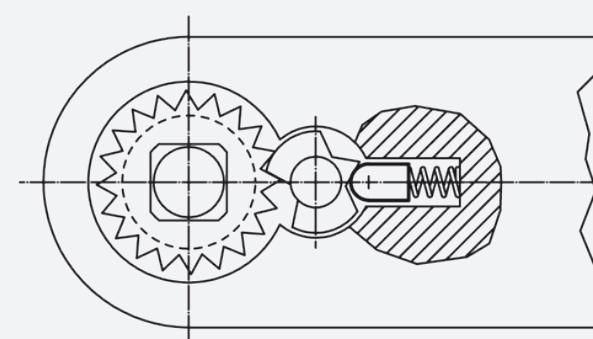


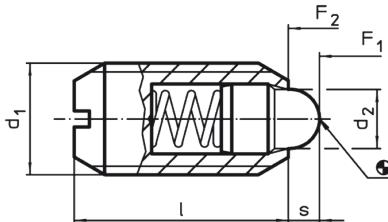
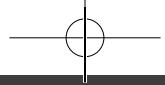
技术制图 Technical Drawing

特殊的加工, 欢迎洽询。
>>>Special types upon request. <<<

参考品号 REF. No.	d_1 ± 0.05	l_0	d_2	l_3	l_F1	l_F2	弹簧荷重 Spring load		R N/mm	$\frac{g}{\text{N/mm}}$	Finish
							F_1 N \approx *	F_2 N \approx *			
22100.0012	2.2	16	-	7.8	12	10.5	2.2	3	0.53	0.13	本体材质为钢圆 (如图 1)
22100.0016	2.6	8	-	3.8	6.5	5.2	1.1	2	0.7	0.07	body from steel, round (picture 1)
22100.0022	3	12	-	6	9	8.7	6.2	6.8	2	0.18	
22100.0024	3	16	-	8.5	13	10.7	4.8	8.4	1.6	0.23	
22100.0034	3.4	12	-	6	9	7.8	5	7	1.69	0.18	
22100.0036	3.4	15	-	7.3	12	8.2	5.9	13.3	1.95	0.23	
22100.0042	4	14	-	8	12	9	5	12.3	2.45	0.41	
22100.0052	5	16	-	8	13	10.4	8	15	2.7	0.59	本体材质为不锈钢圆 (如图 1)
22100.0124	3	16	-	8	13	10.6	4.8	8.6	1.6	0.22	body from stainless steel, round (picture 1)
22100.0137	3.6	18	-	9	15	11.5	6.7	14.5	2.24	0.36	
22100.0144	4	16	-	7.5	13	11.4	8	12.3	2.7	0.37	
22100.0212	2.2	16	-	7.8	12	10.5	2.2	3	0.53	0.12	本体材质为钢尖端 (如图 2)
22100.0222	3	11	-	5	9	6.7	1.6	3.4	0.78	0.11	body from steel, tipped (picture 2)
22100.0224	3	16	-	8.5	13	10.7	4.8	8.4	1.6	0.23	
22100.0323	3	13	4	6.3	10	9	5.3	7	1.75	0.2	本体材质为黄铜圆, 有轴环 (如图 3)
22100.0373	3	13	4.1	7	10	8.9	5.3	7.2	1.75	0.19	body from brass, round, with collar (picture 3)

应用实例 Application





技术制图 Technical Drawing

EH 2B020.

定位柱, 有螺栓和槽 UNC/UNF

SPRING PLUNGERS, WITH PIN
AND SLOT UNC/UNF

材料

本体: 切削钢, 染黑。不锈钢 1.4305 (ASTM-A-582)

梢子: 切削钢, 硬化, 染黑。不锈钢 1.4305 (ASTM-A-582)

弹簧: 不锈钢

Material:

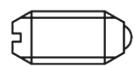
Body: Free cutting steel, blackened. Stainless steel 1.4305 (ASTM-A-582).

Pin: Free cutting steel, hardened, blackened. Stainless steel 1.4305 (ASTM-A-582).

Spring: Stainless steel

特性

标准弹簧荷重: 无标示



Standard spring load Heavy spring load

Characteristic:

Standard spring load: no marking

Heavy spring load: marked with two lines

注意

适合作为止动组件或适用于定点、定位、定分度、锁定、闩锁、顶出、顶举及其它类似的推式应用。

无螺纹锁件之执行组件的温度范围可达 482 °F。

螺纹锁件: 聚酰胺局部涂布 (细节请参考技术数据页)。

螺纹组件: 2A-UNC / UNF

请特别注意接续于产品页之后的技术说明内容。

Note:

To be used as a detent or for locating, positioning, indexing, locking, latching and ejecting.

Temperature range for types without thread lock up to 482 °F.

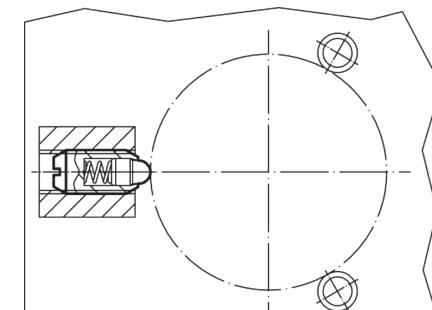
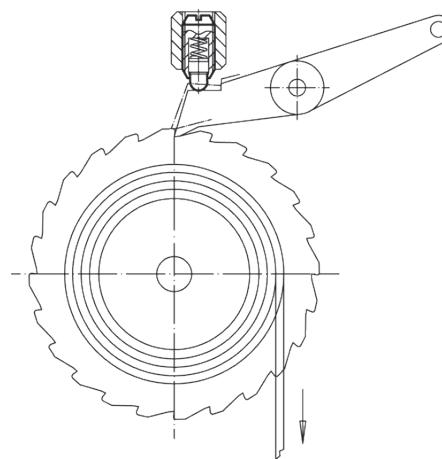
Thread lock: Polyamide spot coating (for details please refer to the technical data pages).

Thread: 2A-UNC / UNF

Please pay attention to the technical instructions after these product pages.

特殊的加工欢迎洽询。
弹簧的范围和力量经准确的测试。
>>>Special types upon request. <<<
Spring range and forces are precisely tested.

应用实例 Application



Unit:inch(英寸)

参考品号 不包括螺牙锁固 REF. No.without thread lock	参考品号 包括螺牙锁固 Ref. No.without thread lock	d_1^*	l^*	s^*	d_2^*	弹簧荷重 Spring load $F_1 \approx **$	弹簧荷重 Spring load $F_2 \approx **$	$\frac{oz}{oz.}$	Finish
2B020.0033	2B020.0233	UNC 6-32	3/8	0.063	0.046	0.5	1.5	0.021	切削钢
2B020.0036	2B020.0236	UNC 8-32	7/16	0.052	0.07	0.8	1.5	0.032	标准
2B020.0038	2B020.0238	UNF 8-36	7/16	0.052	0.07	0.8	1.5	0.032	弹簧荷重
2B020.0040	2B020.0240	UNF 10-32	15/32	0.065	0.093	1	2.5	0.042	free cutting steel,
2B020.0042	2B020.0242	UNC 1/4-20	17/32	0.078	0.119	1.1	3.5	0.074	standard
2B020.0046	2B020.0246	UNC 5/16-18	37/64	0.084	0.135	1	4	0.123	spring load
2B020.0048	2B020.0248	UNC 3/8-16	5/8	0.11	0.186	1.5	4.5	0.187	
2B020.0050	2B020.0250	UNC 1/2-13	3/4	0.151	0.248	1.8	5.5	0.377	
2B020.0052	2B020.0252	UNC 5/8-11	1 1/16	0.215	0.31	2	8.5	0.885	
2B020.0063	2B020.0263	UNC 6-32	3/8	0.063	0.046	0.5	2.5	0.018	切削钢
2B020.0066	2B020.0266	UNC 8-32	7/16	0.052	0.07	1.8	4.6	0.032	标准
2B020.0068	2B020.0268	UNF 8-36	7/16	0.052	0.07	1.8	4.6	0.032	重弹簧荷重
2B020.0070	2B020.0270	UNF 10-32	15/32	0.065	0.093	2.6	6.3	0.042	free cutting steel,
2B020.0072	2B020.0272	UNC 1/4-20	17/32	0.078	0.119	3	9.7	0.074	heavy spring load
2B020.0076	2B020.0276	UNC 5/16-18	37/64	0.084	0.135	3.8	13	0.123	
2B020.0078	2B020.0278	UNC 3/8-16	5/8	0.11	0.186	4.5	16	0.19	
2B020.0080	2B020.0280	UNC 1/2-13	3/4	0.151	0.248	5	22.4	0.384	
2B020.0082	2B020.0282	UNC 5/8-11	1 1/16	0.215	0.31	7	43.5	0.907	
2B020.0133	2B020.0333	UNC 6-32	3/8	0.063	0.046	0.5	1.5	0.021	不锈钢
2B020.0136	2B020.0336	UNC 8-32	7/16	0.052	0.07	0.8	1.5	0.032	标准弹簧荷重
2B020.0138	2B020.0338	UNF 8-36	7/16	0.052	0.07	0.8	1.5	0.032	stainless steel,
2B020.0140	2B020.0340	UNC 10-32	15/32	0.065	0.093	1	2.5	0.042	standard
2B020.0142	2B020.0342	UNC 1/4-20	17/32	0.078	0.119	1.1	3.5	0.074	spring load
2B020.0146	2B020.0346	UNC 5/16-18	37/64	0.084	0.135	1	4	0.123	
2B020.0148	2B020.0348	UNC 3/8-16	5/8	0.11	0.186	1.5	4.5	0.19	
2B020.0150	2B020.0350	UNC 1/2-13	3/4	0.151	0.248	1.8	5.5	0.388	
2B020.0152	2B020.0352	UNC 5/8-11	1 1/16	0.215	0.31	2	8.5	0.892	
2B020.0163	2B020.0363	UNC 6-32	3/8	0.063	0.046	0.5	2.5	0.018	不锈钢
2B020.0166	2B020.0366	UNC 8-32	7/16	0.052	0.07	1.8	4.6	0.032	重弹簧荷重
2B020.0168	2B020.0368	UNF 8-36	7/16	0.052	0.07	1.8	4.6	0.032	stainless steel,
2B020.0170	2B020.0370	UNC 10-32	15/32	0.065	0.093	2.6	6.3	0.042	standard
2B020.0172	2B020.0372	UNC 1/4-20	17/32	0.078	0.119	3	9.7	0.071	heavy spring load
2B020.0176	2B020.0376	UNC 5/16-18	37/64	0.084	0.135	3.8	13	0.123	
2B020.0178	2B020.0378	UNC 3/8-16	5/8	0.11	0.186	4.5	16	0.194	
2B020.0180	2B020.0380	UNC 1/2-13	3/4	0.151	0.248	5	22.4	0.399	
2B020.0182	2B020.0382	UNC 5/8-11	1 1/16	0.215	0.31	7	43.5	0.914	

* 所有的尺寸单位都是英寸 * All dimensions are stated in inch. * 统计平均值 * statistical average value



EH 22140.

侧向式定位柱
LATERAL SPRING PLUNGERS



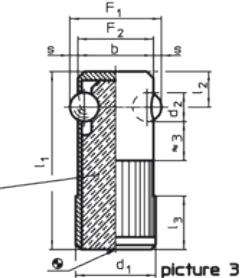
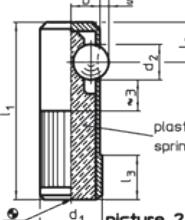
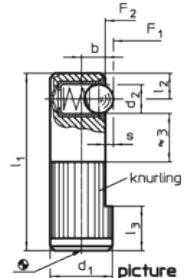
材料
Material:

本体: 切削钢. 染黑
珠子: 轴承钢. 硬化. 不锈钢. 硬化. 得林白塑料 (POM)
弹簧: 不锈钢. 塑料 (PU)

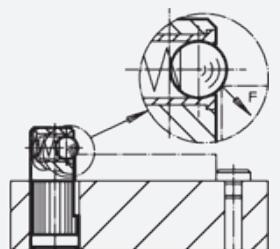
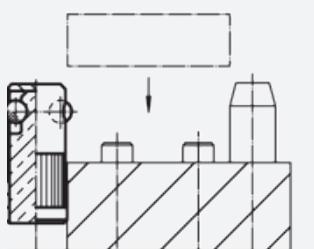
Body: Free cutting steel. blackened
Ball: Ball-bearing steel. hardened. Stainless steel. hardened. Thermoplastic POM. white
Spring: Stainless steel. Plastic (PU)

注意
Note:

应考虑安插孔 l_3 。适用于定位或供压。
Insertion bore l_3 to be considered. For positioning or applying pressure.



技术制图 Technical Drawing



特殊的加工欢迎洽询。
>>>Special types upon request. <<<

Clamptek®

EH 22150.

侧向式定位柱. 光滑. 无密封
LATERAL PLUNGERS.
SMOOTH. WITHOUT SEAL



材料
Material:

本体: 铝. 被钝化的银色
梢子: 钢. 表面硬化. 镀锌. 得林白塑料 (POM)
弹簧: 弹簧钢丝
Body: Aluminium. silver passivated
Pin: Steel. case-hardened. Galvanized. Thermoplastic POM, white
Spring: Spring steel wire

特性
Characteristic:

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢, 染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel. blackened
Heavy spring load = spring from steel. galvanized

适用于定位及供压。横向定位柱系藉由压入方式安装。

搭配钢梢的应用温度可达 +250 °C. 搭配塑料梢则可达 +80 °C。

关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$

l_0 = 中心距离. y = 工件高度. w = 工件长度. x = 行程. z = 档块直径

工件的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$

工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$

To be used for positioning and applying pressure. Lateral plungers are installed by pressing in.

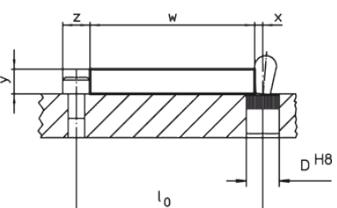
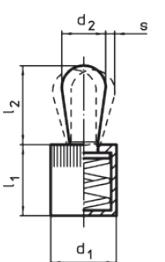
Temperature range: with steel pin up to 250 °C; with plastic pin up to 80 °C. Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$

l_0 = center distance. y = work piece height. w = work piece length. x = stroke. z = stop diameter.

Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$

Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) * 0.123]$

注意
Note:



技术制图 Technical Drawing

参考品号 Ref. No.	d_1	d_2	彈簧荷重 Spring load F_{max} $N_{\pm 0.5}$ *	l_1	l_2	s	x	g	Finish						
------------------	-------	-------	---	-------	-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	--------

22150.0010	6	3	10	7	4	0.5	0.8	1	1	1	1	1	1	0.6
22150.0011	6	3	20	7	4	0.5	0.8	1	1	1	1	1	1	0.63
22150.0012	6	3	40	7	4	0.5	0.8	1	1	1	1	1	1	0.66
22150.0020	10	5	20	11	6.7	0.8	-	1.5	1.7	1.7	1.7	1.7	1.7	2.6
22150.0021	10	5	50	11	6.7	0.8	-	1.5	1.7	1.7	1.7	1.7	1.7	2.8
22150.0022	10	5	100	11	6.7	0.8	-	1.5	1.7	1.7	1.7	1.7	1.7	3
22150.0025	10	6	40	11	10.7	1	-	-	-	1.7	1.9	1.9	1.9	3.4
22150.0026	10	6	75	11	10.7	1	-	-	-	1.7	1.9	1.9	1.9	3.6
22150.0027	10	6	150	11	10.7	1	-	-	-	1.7	1.9	1.9	1.9	3.9
22150.0030	12	8	50	13	13.9	1.3	-	-	-	-	2.5	2.7	6.8	
22150.0031	12	8	100	13	13.9	1.3	-	-	-	-	2.5	2.7	7.3	
22150.0032	12	8	200	13	13.9	1.3	-	-	-	-	2.5	2.7	7.8	
22150.0040	16	10	100	17	16.7	1.6	-	-	-	-	-	3.1	14	
22150.0041	16	10	200	17	16.7	1.6	-	-	-	-	-	3.1	15	
22150.0042	16	10	300	17	16.7	1.6	-	-	-	-	-	3.1	15	
22150.0050	6	3	10	7	4	0.5	0.8	1	1	1	1	1	1	0.34
22150.0060	10	5	20	11	6.7	0.8	-	1.5	1.7	1.7	1.7	1.7	1.3	
22150.0062	10	6	40	11	10.7	1	-	-	-	1.7	1.9	1.9	1.9	1.54
22150.0070	12	8	50	13	13.9	1.3	-	-	-	-	2.5	2.7	2.9	
22150.0080	16	10	100	17	16.7	1.6	-	-	-	-	-	3.1	6.6	

参考品号 Ref. No.	d_1	g	安装工具 mounting tool
22150.0830	6	19	
22150.0831	10	49	
22150.0832	12	65	
22150.0833	16	105	

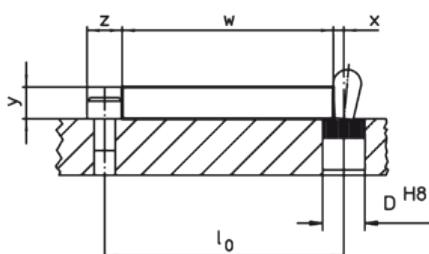
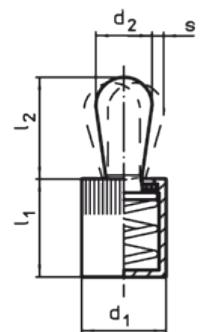
* 统计平均值 * statistical average value

HALDER
NORM+TECHNIK



EH 22150.

侧向式定位柱 . 光滑 . 有密封
LATERAL PLUNGERS, SMOOTH,
WITH SEAL



技术制图 Technical Drawing

材料
Material:

本体 : 铝, 被钝化的银色
梢子 : 钢, 表面硬化, 镀锌、得林白塑料 (POM)
弹簧 : 弹簧钢丝
胶封 : CR
Body: Aluminium, silver passivated
Pin: Steel, case-hardened, galvanized, Thermoplastic POM, white
Spring: Spring steel wire
Seal: CR

特性
Characteristic

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢, 染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel. blackened
Heavy spring load = spring from steel. galvanized

注意
Note:

适用于定位及供压。密封以防泄露, 防尘。
横向定位柱以压入方式安装。
搭配钢梢的应用温度可达 +110 °C, 搭配塑料梢则可达 +80 °C。
关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$
 l_0 = 中心距离, y = 工件高度, w = 工件长度, x = 行程, z = 停止距离
工件的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$
工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$
To be used for positioning and applying pressure. Sealed against chips and dirt. Lateral plungers are installed by pressing in.
Temperature range: with steel pin up to 110 °C, with plastic pin up to 80 °C.
Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$
 l_0 = center distance, y = work piece height, w = work piece length, x = stroke, z = stop diameter.
Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$.
Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$
Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$

参考品号 Ref. No.	d ₁	d ₂	弹簧荷重			x y=1	x y=2	x y=3	x y=4.5	x y=6	x y=8	g	Finish
			Spring load F max N≈*	-1	l ₂								
22150.0110	6	3	10	7	4	0.5	0.8	1	1	1	1	1	0.6
22150.0111	6	3	20	7	4	0.5	0.8	1	1	1	1	1	0.6
22150.0112	6	3	40	7	4	0.5	0.8	1	1	1	1	1	0.7
22150.0120	10	5	20	12	6	0.8	-	1.5	1.7	1.7	1.7	1.7	2.6
22150.0121	10	5	50	12	6	0.8	-	1.5	1.7	1.7	1.7	1.7	2.9
22150.0122	10	5	100	12	6	0.8	-	1.5	1.7	1.7	1.7	1.7	3
22150.0125	10	6	40	12	10	1	-	-	-	1.7	1.9	1.9	3.4
22150.0126	10	6	75	12	10	1	-	-	-	1.7	1.9	1.9	3.6
22150.0127	10	6	150	12	10	1	-	-	-	1.7	1.9	1.9	3.9
22150.0130	12	8	50	14	13	1.3	-	-	-	-	2.5	2.7	6.9
22150.0131	12	8	100	14	13	1.3	-	-	-	-	2.5	2.7	7.5
22150.0132	12	8	200	14	13	1.3	-	-	-	-	2.5	2.7	7.9
22150.0140	16	10	100	18	16	1.6	-	-	-	-	-	3.1	15
22150.0141	16	10	200	18	16	1.6	-	-	-	-	-	3.1	15
22150.0142	16	10	300	18	16	1.6	-	-	-	-	-	3.1	16
22150.0150	6	3	10	7	4	0.5	0.8	1	1	1	1	1	0.46
22150.0160	10	5	20	12	6	0.8	-	1.5	1.7	1.7	1.7	1.7	1.4
22150.0165	10	6	40	12	10	1	-	-	-	1.7	1.9	1.9	1.6
22150.0170	12	8	50	14	13	1.3	-	-	-	-	2.5	2.7	2.92
22150.0180	16	10	100	18	16	1.6	-	-	-	-	-	3.1	7.3

参考品号 Ref. No.	d ₁	g	安装工具 mounting tool
22150.0830	6	19	
22150.0831	10	49	
22150.0832	12	65	
22150.0833	16	105	

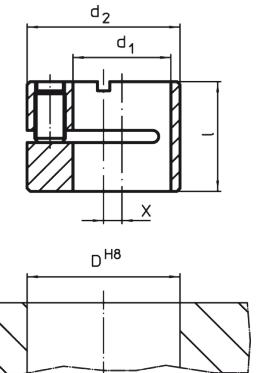
* 统计平均值 * statistical average value

Clamptek®

EH 22150.

偏心圆 . 适用于侧向式
定位柱 . 光滑

ECCENTRIC MOUNTING BUSHINGS.
FOR LATERAL PLUNGERS. SMOOTH



技术制图 Technical Drawing

材料
Material:

本体 : 钢 . 染黑
Body: Steel. blackened

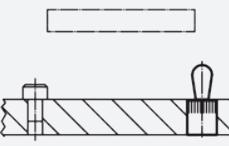
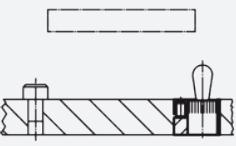
注意
Note:

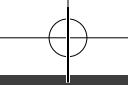
偏心块系用于连接平滑的横向定位柱 EH 22150. 适用于公差大的定位或固夹工件。
偏心块系藉由螺纹梢以固夹方式安装及定位。
The eccentric is used in conjunction with smooth lateral plungers EH 22150.
for positioning or clamping work pieces with large tolerances.
The eccentric is fitted and positioned by clamping with a threaded pin.

参考品号 Ref. No.	d ₁ H7	d ₂ H9	l	x	g
22150.0806	6	12	9.9	2	5.5
22150.0810	10	16	11.9	2	9.5
22150.0812	12	18	13.9	2	13
22150.0816	16	25	17.9	3	35

* 统计平均值 * statistical average value

应用实例 Application





Unit:mm

EH 22150.

侧向式定位柱，有螺纹
和钢梢，无密封

LATERAL PLUNGERS, WITH
THREAD, WITHOUT SEAL

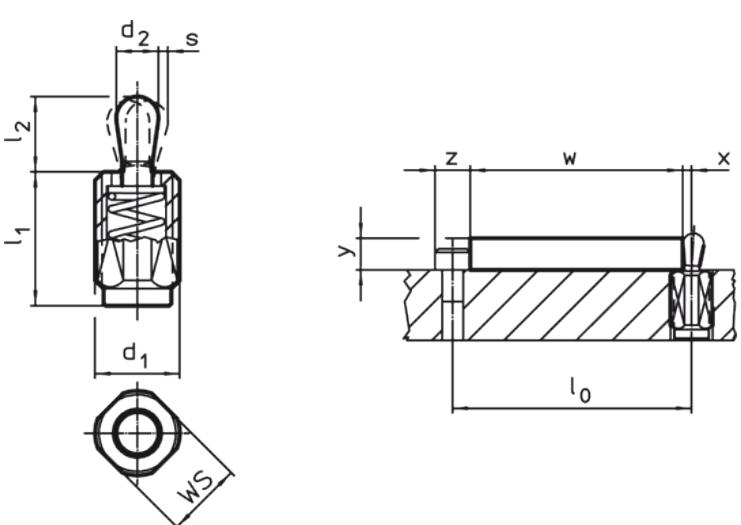


材料 Material:	本体：镀锌钢 梢子：钢，表面硬化，镀锌、得林白塑料 (POM)
	弹簧：弹簧钢丝

Body: Steel, galvanized
Pin: Steel, case-hardened, galvanized, Thermoplastic POM, white
Spring: Spring steel wire

特性 Characteristic	轻弹簧荷重 = 弹簧为不锈钢 标准弹簧荷重 = 弹簧为钢，染黑 重弹簧荷重 = 弹簧为镀锌钢 Light spring load = spring from stainless steel Standard spring load = spring from steel, blackened Heavy spring load = spring from steel, galvanized

注意 Note:	适用于定位及供压。横向定位柱系利用一固定工具以锁入的方式安装。 搭配钢梢的应用温度可达 + 250 °C。搭配塑料梢的应用温度可达 + 80 °C 关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$ l_0 = 中心距离, y = 工件高度, w = 工作长度, x = 行程, z = 停止直径 工作的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$ 工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$ To be used for positioning and applying pressure. Lateral plungers are installed by screwing in by means of a mounting tool. Temperature range: with steel pin up to max. 250°C, with plastic pin up to max 80 °C. Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$ l_0 = center distance, y = work piece height, w = work piece length, x = stroke, z = stop diameter. Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$. Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$
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技术制图 Technical Drawing

参考品号 Ref. No.	d ₁	l ₁	d ₂	l ₂	s +/-	弹簧荷重 Spring load F max N _{s*}	Finish	
							-1.5	WS
22150.0310	M12	11.5	20	5	6.7	0.8	10	4
22150.0311	M12	11.5	50	5	6.7	0.8	10	4.1
22150.0312	M12	11.5	100	5	6.7	0.8	10	4.4
22150.0314	M12	19	20	5	6.7	0.8	10	5.9
22150.0315	M12	19	50	5	6.7	0.8	10	6.4
22150.0316	M12	19	100	5	6.7	0.8	10	6.9
22150.0318	M12	26.5	20	5	6.7	0.8	10	7.9
22150.0319	M12	26.5	50	5	6.7	0.8	10	8.3
22150.0320	M12	26.5	100	5	6.7	0.8	10	9
22150.0330	M12	11.5	40	6	10.7	1	10	4.8
22150.0331	M12	11.5	75	6	10.7	1	10	4.9
22150.0332	M12	11.5	150	6	10.7	1	10	5.4
22150.0334	M12	19	40	6	10.7	1	10	6.6
22150.0335	M12	19	75	6	10.7	1	10	7.1
22150.0336	M12	19	150	6	10.7	1	10	7.7
22150.0338	M12	26.5	40	6	10.7	1	10	8.6
22150.0339	M12	26.5	75	6	10.7	1	10	9.6
22150.0340	M12	26.5	150	6	10.7	1	10	10
22150.0350	M18*1.5	18	100	10	16.7	1.6	16	19
22150.0351	M18*1.5	18	200	10	16.7	1.6	16	20
22150.0352	M18*1.5	18	300	10	16.7	1.6	16	21
22150.0354	M18*1.5	31.5	100	10	16.7	1.6	16	28
22150.0355	M18*1.5	31.5	200	10	16.7	1.6	16	29
22150.0356	M18*1.5	31.5	300	10	16.7	1.6	16	30
22150.0358	M18*1.5	45	100	10	16.7	1.6	16	36
22150.0359	M18*1.5	45	200	10	16.7	1.6	16	39
22150.0360	M18*1.5	45	300	10	16.7	1.6	16	40
22150.0370	M12	11.5	20	5	6.7	0.8	10	2.7
22150.0373	M12	11.5	40	6	10.7	1	10	3.1
22150.0375	M12	19	20	5	6.7	0.8	10	4.6
22150.0380	M12	19	40	6	10.7	1	10	4.8
22150.0383	M12	26.5	20	5	6.7	0.8	10	6.5
22150.0385	M12	26.5	40	6	10.7	1	10	6.8
22150.0390	M18*1.5	18	100	10	16.7	1.6	16	12
22150.0393	M18*1.5	31.5	100	10	16.7	1.6	16	20
22150.0395	M18*1.5	45	100	10	16.7	1.6	16	30

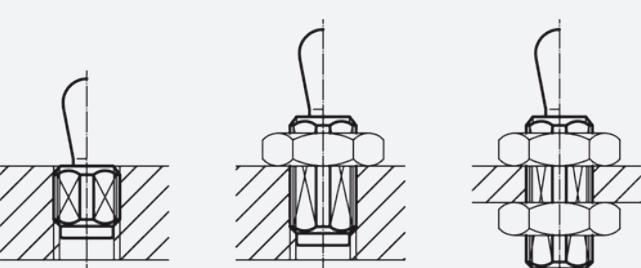
钢梢，无密封
steel pin
without seal

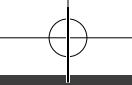
塑料梢，无密封
thermoplastic pin
without seal

参考品号 Ref. No.	d ₁	g	安装工具 mounting tool
22150.0820	M12	76	
22150.0822	M18*1.5	137	

* 统计平均值 * statistical average value

应用实例 Application





EH 22150.

侧向式定位柱 . 有螺纹
和钢梢，有密封

LATERAL PLUNGERS.
WITH THREAD, WITH SEAL



材料 Material:

本体 : 镀锌钢
梢子 : 钢, 表面硬化, 镀锌得林白塑料 (POM)
弹簧 : 弹簧钢丝
胶封 : CR
Body:Steel, galvanized
Pin:Steel, case-hardened, galvanized Thermoplastic POM, white
Spring:Spring steel wire
Seal:CR

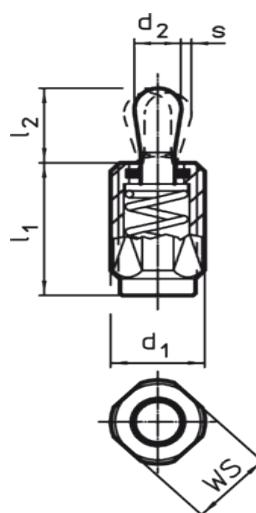
特性 Characteristic:

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢, 染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel, blackened
Heavy spring load = spring from steel, galvanized

注意 Note:

适用于定位及供压。密封以防泄露, 防尘。
横向定位柱系利用一个固定工具以锁入的方式安装。
搭配钢梢的应用温度可达 + 110 °C。搭配塑料梢的应用温度可达 + 80 °C
关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$.
 l_0 = 中心距离, y = 工件高度, w = 工件长度, x = 行程, z = 停止直径
工件的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$
工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$

To be used for positioning and applying pressure. Sealed against chips and dirt.
Lateral plungers are installed by screwing in are installed by screwing in with a mounting tool.
Temperature range: with steel pin up to max. 110 °C, with plastic pin up to max. 80 °C.
Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$.
 l_0 = center distance, y = work piece height, w = work piece length, x = stroke, z = stop diameter.
Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$
Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$



技术制图 Technical Drawing

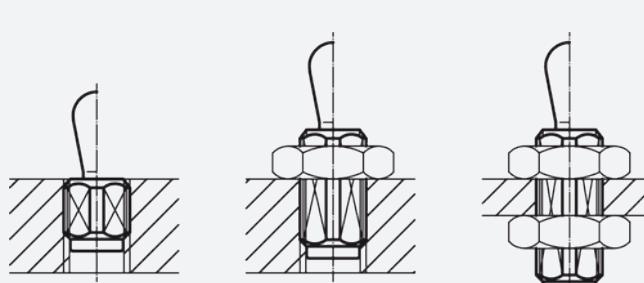
Unit:mm

参考品号 Ref. No.	d ₁	l ₁ -1.5	弹簧荷重 F _{max} N [*]	弹簧荷重		d ₂	l ₂	s +/-	WS	g	Finish
				d ₁	l ₁						
22150.0410	M12	11.5	20	5	6	0.8	10	3.8			
22150.0411	M12	11.5	50	5	6	0.8	10	4.1			
22150.0412	M12	11.5	100	5	6	0.8	10	4.2			
22150.0414	M12	19	20	5	6	0.8	10	5.6			
22150.0415	M12	19	50	5	6	0.8	10	6.3			
22150.0416	M12	19	100	5	6	0.8	10	6.6			
22150.0418	M12	26.5	20	5	6	0.8	10	7.5			
22150.0419	M12	26.5	50	5	6	0.8	10	8.1			
22150.0420	M12	26.5	100	5	6	0.8	10	8.7			
22150.0430	M12	11.5	40	6	10	1	10	4.7			钢梢, 有密封
22150.0431	M12	11.5	75	6	10	1	10	4.8			steel pin
22150.0432	M12	11.5	150	6	10	1	10	5.4			with seal
22150.0434	M12	19	40	6	10	1	10	6.5			
22150.0435	M12	19	75	6	10	1	10	6.9			
22150.0436	M12	19	150	6	10	1	10	7.6			
22150.0438	M12	26.5	40	6	10	1	10	8.3			
22150.0439	M12	26.5	75	6	10	1	10	8.9			
22150.0440	M12	26.5	150	6	10	1	10	10			
22150.0450	M18*1.5	18	100	10	16	1.6	16	20			
22150.0451	M18*1.5	18	200	10	16	1.6	16	20			
22150.0452	M18*1.5	18	300	10	16	1.6	16	20			
22150.0454	M18*1.5	31.5	100	10	16	1.6	16	28			
22150.0455	M18*1.5	31.5	200	10	16	1.6	16	29			
22150.0456	M18*1.5	31.5	300	10	16	1.6	16	29			
22150.0458	M18*1.5	45	100	10	16	1.6	16	36			
22150.0459	M18*1.5	45	200	10	16	1.6	16	40			
22150.0460	M18*1.5	45	300	10	16	1.6	16	38			
22150.0470	M12	11.5	20	5	6	0.8	10	2.6			
22150.0473	M12	11.5	40	6	10	1	10	2.7			
22150.0475	M12	19	20	5	6	0.8	10	4.4			
22150.0480	M12	19	40	6	10	1	10	4.5			塑料梢, 有密封
22150.0483	M12	26.5	20	5	6	0.8	10	6.1			thermoplastic pin
22150.0485	M12	26.5	40	6	10	1	10	6.2			with seal
22150.0490	M18*1.5	18	100	10	16	1.6	16	12			
22150.0493	M18*1.5	31	100	10	16	1.6	16	21			
22150.0495	M18*1.5	45	100	10	16	1.6	16	30			

参考品号 Ref. No.	d ₁	g	安装工具 mounting tool
22150.0820	M12	76	
22150.0822	M18*1.5	137	

* 统计平均值 * statistical average value

应用实例 Application





EH 22150.

侧向式定位柱，光滑无密封，有内螺纹
LATERAL PLUNGERS.
SMOOTH WITHOUT SEAL,
WITH FEMALE THREAD



**材料
Material:**

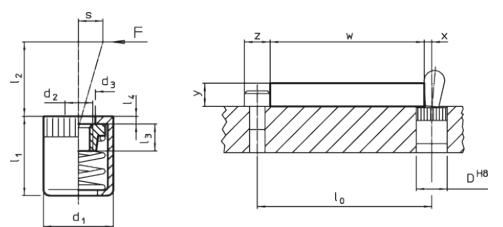
本体：铝
弹簧：弹簧钢丝
螺纹垫圈：钢，染黑
Body: Aluminium
Spring: Spring steel wire
Threaded washer: Steel, blackened

**特性
Characteristic**

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢，染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel, blackened
Heavy spring load = spring from steel, galvanized

**注意
Note:**

适用于定位及供压。单独固定螺丝可以拧在螺纹孔上。
横向定位柱以压入方式安装。
应用温度可达 + 250 °C。
关于计算固定孔中心距离之公式： $l_0 = z/2 + w + x$
 l_0 = 中心距离 .y = 工件高度 .w = 工作长度 .x = 行程 .z = 停止直径
工件的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$
工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$
To be used for positioning and applying pressure. Individual set screws can be screwed in the plate with threaded hole.
Lateral plungers are installed by pressing in.
Temperature range up to max. 250°C
Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$
 l_0 = center distance. y = work piece height. w = work piece length.
x = stroke. z = stop diameter.
Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$
Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$



技术制图 Technical Drawing

参考品号 Ref. No.	d ₁	弹簧荷重 Spring load F max.*		d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	s	g
		d ₁	F max.*								
22150.1020	10	20	M4	6.3	12	4	4.5	1.5	1.6	1.8	
22150.1021	10	50	M4	6.3	12	4	4.5	1.5	1.6	2.1	
22150.1022	10	100	M4	6.3	12	4	4.5	1.5	1.6	2.3	
22150.1025	10	40	M4	6.3	12	7.5	4.5	1.5	2	1.9	
22150.1026	10	75	M4	6.3	12	7.5	4.5	1.5	2	2.1	
22150.1027	10	150	M4	6.3	12	7.5	4.5	1.5	2	2.5	
22150.1040	16	100	M6	10.3	18	11.5	7.5	1.6	3.2	9.4	
22150.1041	16	200	M6	10.3	18	11.5	7.5	1.6	3.2	9.4	
22150.1042	16	300	M6	10.3	18	11.5	7.5	1.6	3.2	9.3	

参考品号 Ref. No.	d ₁	g	安装工具 mounting tool
22150.0831	10	49	
22150.0833	16	105	

* 统计平均值 * statistical average value

EH 22150.

侧向式定位柱，光滑有密封，有内螺纹
LATERAL PLUNGERS.
SMOOTH WITH SEAL,
WITH FEMALE THREAD



**材料
Material:**

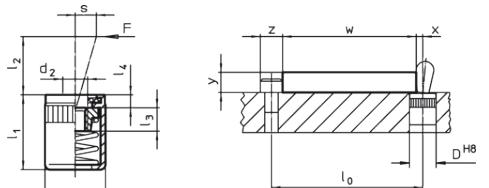
本体：铝
弹簧：弹簧钢丝
螺纹垫圈：钢，染黑
胶封：CR
Body: Aluminium
Spring: Spring steel wire
Threaded washer: Steel, blackened
Seal: CR

**特性
Characteristic**

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢，染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel, blackened
Heavy spring load = spring from steel, galvanized

**注意
Note:**

适用于定位及供压。密封以防泄露，防尘。
单独固定螺丝可以拧在螺纹孔上。
横向定位柱以压入方式安装。
应用温度可达 + 110 °C。
关于计算固定孔中心距离之公式： $l_0 = z/2 + w + x$
 l_0 = 中心距离 .y = 工件高度 .w = 工作长度 .x = 行程 .z = 停止直径
工作的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$
工作的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$
To be used for positioning or applying pressure. Sealed against chips and dirt.
Individual pins can be inserted in the plate with threaded holes.
Lateral plungers are installed by pressing in.
Temperature range up to max. 110°C.
Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$
 l_0 = center distance. y = work piece height. w = work piece length. x = stroke.
z = stop diameter.
Calculation dimension x for work piece larger than $l_2 - d_2/2$: $x = d_2/2 - s$
Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) \times 0.123]$



技术制图 Technical Drawing

参考品号 Ref. No.	d ₁	弹簧荷重 Spring load F max. N _z *	d ₂	l ₁	l ₂	l ₃	l ₄	s	g
22150.1120	10	20	M4	12	4	4.5	1.7	1.6	1.9
22150.1121	10	50	M4	12	4	4.5	1.7	1.6	2.2
22150.1122	10	100	M4	12	4	4.5	1.7	1.6	2.3
22150.1125	10	40	M4	12	7.5	4.5	1.7	2	2
22150.1126	10	75	M4	12	7.5	4.5	1.7	2	2.2
22150.1127	10	150	M4	12	7.5	4.5	1.7	2	2.5
22150.1140	16	100	M6	18	11.5	7.5	2	3.2	9.6
22150.1141	16	200	M6	18	11.5	7.5	2	3.2	9.5
22150.1142	16	300	M6	18	11.5	7.5	2	3.2	10

参考品号 Ref. No.	d ₁	g	安装工具 mounting tool
22150.0831	10	49	
22150.0833	16	105	

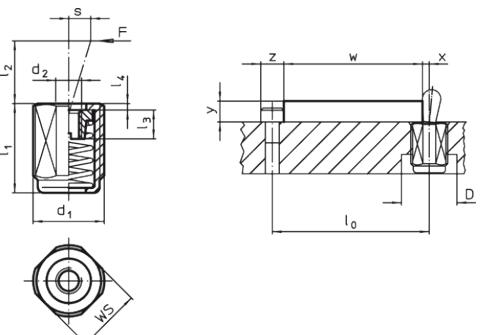
* 统计平均值 * statistical average value



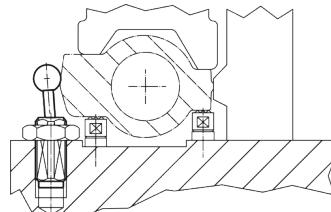
EH 22150.

侧向式定位柱，有螺纹
和钢梢，无密封，有内螺纹

LATERAL PLUNGERS,
WITH THREAD, WITHOUT SEAL,
WITH FEMALE THREAD



技术制图 Technical Drawing



应用实例 Application

**材料
Material:**

本体：钢
弹簧：弹簧钢丝
螺纹垫圈：钢 . 染黑
Body:Steel
Spring:Spring steel wire
Threaded washer:Steel. blackened

**特性
Characteristic**

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢, 染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel. blackened
Heavy spring load = spring from steel. galvanized

**注意
Note:**

适用于定位及供压。单独固定螺丝可以拧在带螺纹孔的板上。

横向定位柱系利用一固定工具以锁入的方式安装。

温度范围最高至 250°C。

关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$

l_0 = 中心距离, y = 工件高度, w = 工件长度, x = 行程, z = 停止直径

工作的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$

工件的计算尺寸 x 小于 $l_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) * 0.123]$

To be used for positioning and applying pressure. Individual set screws can be screwed in the plate with threaded hole.

Lateral plungers are installed by screwing in by means of a mounting tool.

Temperature range up to max. 250°C

Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$

l_0 = center distance, y = work piece height, w = work piece length, x = stroke, z = stop diameter.

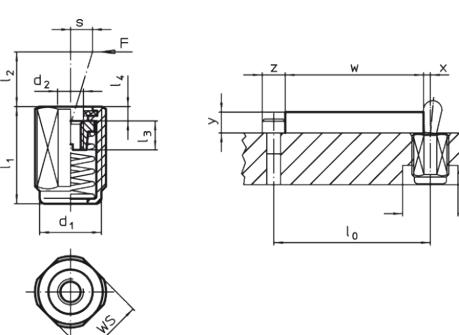
Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$

Calculation dimension x for work pieces smaller than $l_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) * 0.123]$

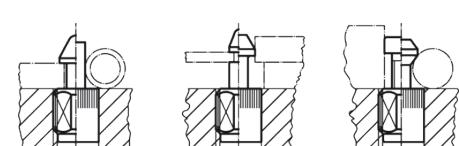
EH 22150.

侧向式定位柱，有螺纹
和钢梢，有密封，有内螺纹

LATERAL PLUNGERS,
WITH THREAD, WITH SEAL,
WITH FEMALE THREAD



技术制图 Technical Drawing



应用实例 Application

**材料
Material:**

本体：钢
弹簧：弹簧钢丝
螺纹垫圈：钢 . 染黑
胶封：CR
Body:Steel
Spring:Spring steel wire
Threaded washer:Steel. blackened
Seal:CR

**特性
Characteristic**

轻弹簧荷重 = 弹簧为不锈钢
标准弹簧荷重 = 弹簧为钢, 染黑
重弹簧荷重 = 弹簧为镀锌钢
Light spring load = spring from stainless steel
Standard spring load = spring from steel. blackened
Heavy spring load = spring from steel. galvanized

**注意
Note:**

适用于定位及供压。密封, 防泄漏, 防尘。

单独固定螺丝可以拧在带螺纹孔的板上。

利用一固定工具以锁入的方式安装。

温度范围最高至 110 °C。

关于计算固定孔中心距离之公式: $l_0 = z/2 + w + x$

l_0 = 中心距离, y = 工件高度, w = 工件长度, x = 行程, z = 停止直径

工作的计算尺寸 x 大于 $l_2 - d_2/2$: $x = d_2/2 - s$

工件的计算尺寸 x 小于 $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) * 0.123]$

To be used for positioning or applying pressure. Sealed against chips and dirt.
Individual pins can be screwed in the plate with threaded holes.

Install by screwing in with a mounting tool.

Temperature range up to max. 110°C.

Formula for calculating the center distance for the mounting hole: $l_0 = z/2 + w + x$
 l_0 = center distance, y = work piece height, w = work piece length, x = stroke, z = stop diameter.

Calculation dimension x for work pieces larger than $l_2 - d_2/2$: $x = d_2/2 - s$

Calculation dimension x for work pieces smaller than $l_2 - d_2/2$: $x = d_2/2 - s - [(l_2 - d_2/2 - y) * 0.123]$

参考品号 Ref. No.	d_1	Δg	安装工具 mounting tool
22150.0820	M12	76	
22150.0822	M18 x 1.5	137	



* 统计平均值 * statistical average value

Clamptek®

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22150.0820	M12	76	
22150.0822	M18 x 1.5	137	

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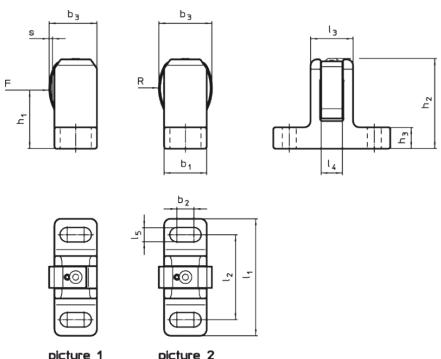
HALDER
NORM+TECHNIK



EH 22160.

侧向式定位柱 . 有弹簧钢板

LATERAL SPRING PLUNGERS. WITH
SPRING STEEL SHEET



技术制图 Technical Drawing

Material:
材料

本体 : 钢, 发黑
弹簧零件 : 不锈钢
Body: Steel, black
Spring element: Stainless steel

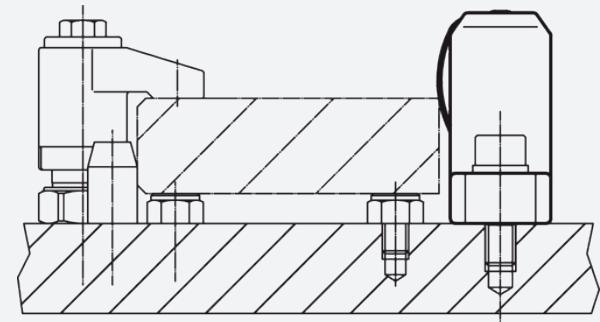
Note:
注意

侧向式定位柱有弹簧钢板。
确保工件在停止或固定板时简单安全定位。
保证夹具在固定板或夹持工序前的安全操作。
在 h_1 作用下产生牵引作用。
双面定位柱适用于持续夹持。
应用温度可达 +250 °C。
The lateral spring plunger with spring steel sheet guarantees a simple and secure positioning of work pieces or components at stops or fixture plates. e.g. mounting of plate or before the clamping process in the jig and fixture construction.
Below h_1 is resulting a down hold effect.
The double-sided version allows for serial clamping.
Temperature range up to max. 250 °C.

参考品号 Ref. No.	l_1 ± 1	l_2	l_3	l_4	螺丝用 screw	b_1 ± 0.5	b_2	b_3	h_1	h_2	h_3	s ± 1	彈簧荷重 Spring load F N \approx *	R	g	Finish	Unit:mm
22160.0006	55	40	20	10	6.6	M6	20	8	22.5	28.5	43	10	1.5	55	22.5	130	单面 (图 1) One-sided (picture 1)
22160.0012	72	50	23	12	13.5	M12	25	6	29	40.5	61.5	15	1.5	170	32.8	255	双面 (图 2) double-sided (picture2)
22160.0206	55	40	20	10	6.6	M6	20	8	25	28.5	42.5	10	1.5	55	22.5	135	油压缸系列 Hydraulic Clamps Series
22160.0212	72	50	23	12	13.5	M12	25	6	33.5	40.5	61.5	15	1.5	170	32.8	260	气压缸系列 Pneumatic Clamps Series

* 统计平均值 * statistical average value

应用实例 Application



CLAMPTEK BRAND

▶ 嘉刚研发产品



▶ 快速手动夹钳 Toggle Clamps



▶ 快速气动夹钳 Pneumatic Toggle Clamps



▶ 油压缸系列 Hydraulic Clamps Series



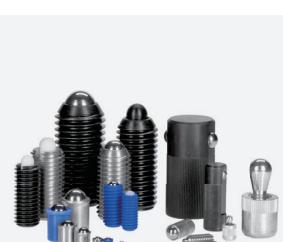
▶ 气压缸系列 Pneumatic Clamps Series



▶ 液压站 Hydraulic Power Units

CLAMPTEK AGENCY

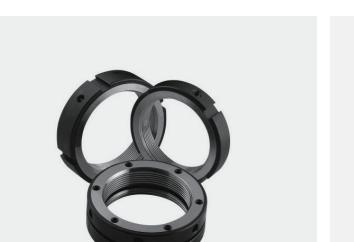
▶ 嘉刚 4 大代理产品



▶ 德国 Halder 弹出定位柱塞
Halder Spring plungers



▶ 弘旺连轴器
Hw Coupling



▶ 盈锡精密锁紧螺母
Yinsh Lock Nuts



▶ 东培精密轴承
Tpi Bearing



HALDER'S OTHER PRODUCT SERIES

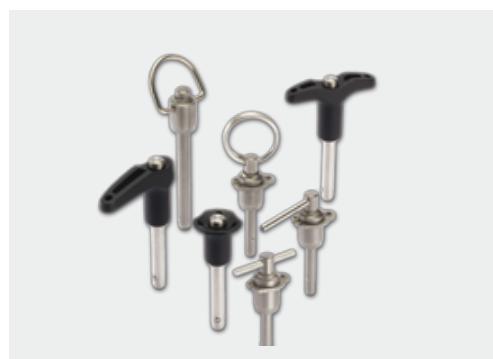
► 德国 Halder 其它研发产品系列



► 标准零件
Standard Parts



► 工件夹具系统
Workholding Systems



► 航空产品
Aviation Products



► 软面锤子
Soft-face Mallets

Conversion table

Measurements

Inch (in)	in	Millimeter (mm)	in x 25,4 = mm
Millimeter (mm)	in	Inch (in)	mm x 0,03937 = in

Weight/Force

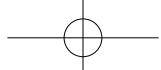
Ounces (oz)	in	Gram (g)	oz x 28 = g
Gram (g)	in	Ounces (oz)	g x 0,0357 = oz
Pounds (lbs)	in	Kilogram (kg)	lbs x 0,4536 = kg
Kilogram (kg)	in	Pounds (lbs)	kg x 2,205 = lbs
Kilogram (kg)	in	Newton (N)	kg x 9,81 = N
Newton (N)	in	Kilogram (kg)	N / 9,81 = kg

Temperature

Degree Fahrenheit (°F)	in	Degree Centigrade (°C)	(°F - 32) x 5/9 = °C
Degree Centigrade (°C)	in	Degree Fahrenheit (°F)	°C x 9/5 + 32 = °F

Torque

Foot-pounds (ft-lbs)	in	Newton-Meter (Nm)	ft/lbs x 1,35 = Nm
Newton-Meter (Nm)	in	Foot-pounds (ft-lbs)	Nm x 0,74 = ft/lbs



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Production organization
approval in accordance
with
EASA Part 21G

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