

SBC LINEAR RAIL SYSTEM *SBC 直线导轨系统*

SBI SERIES INTRODUCTION 系列介绍

[**SBC** Innovation 创新产品]

SBC

TOTAL LINEAR MOTION SOLUTION

SMOOTH MOVEMENT
EVEN UNDER PRELOAD
滑块运动平滑顺畅

LOW NOISE
低噪音

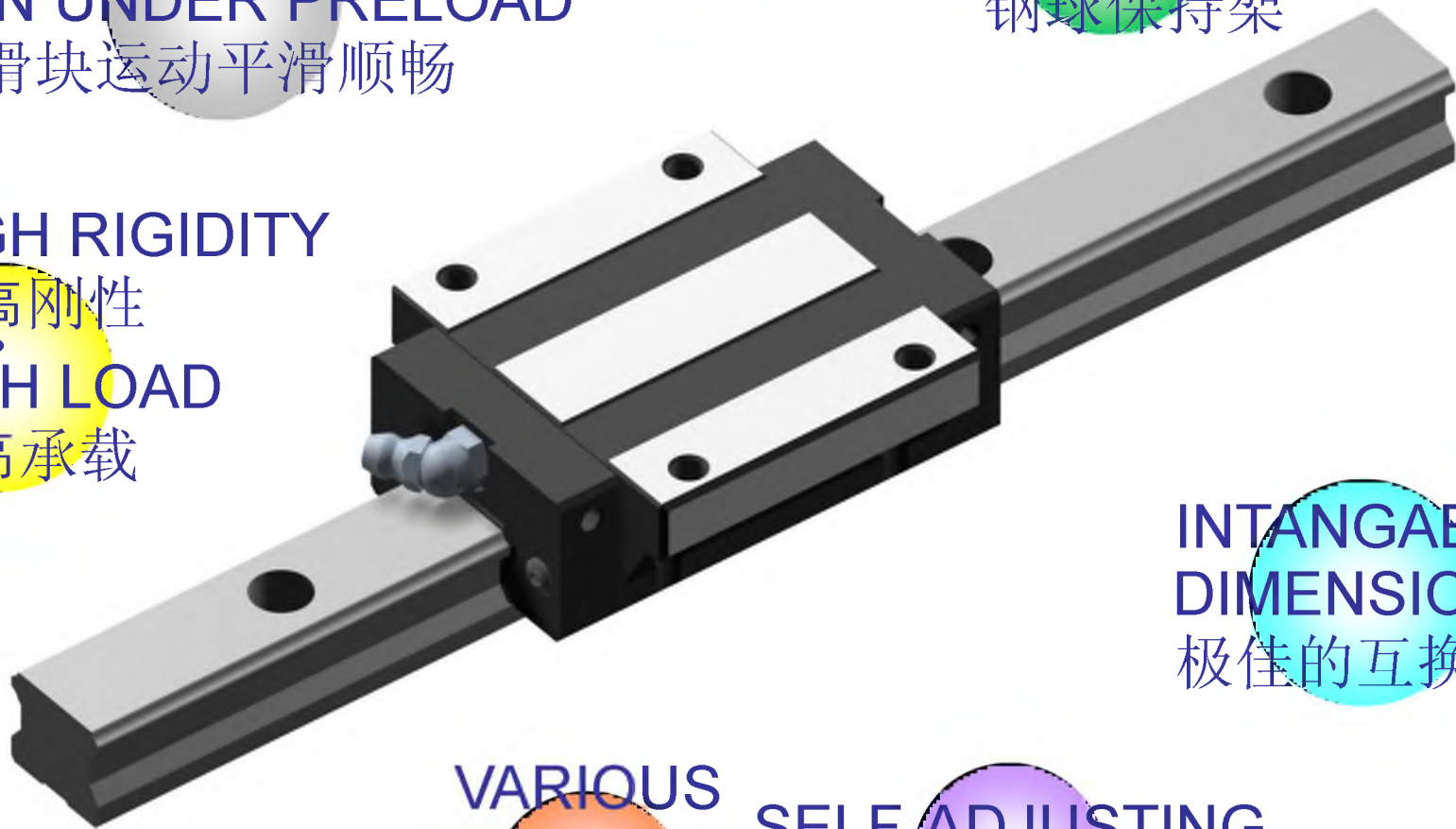
EXCELLENT
BALL RETENTION
良好的
钢球保持架

HIGH RIGIDITY
高刚性
•
HIGH LOAD
高承载

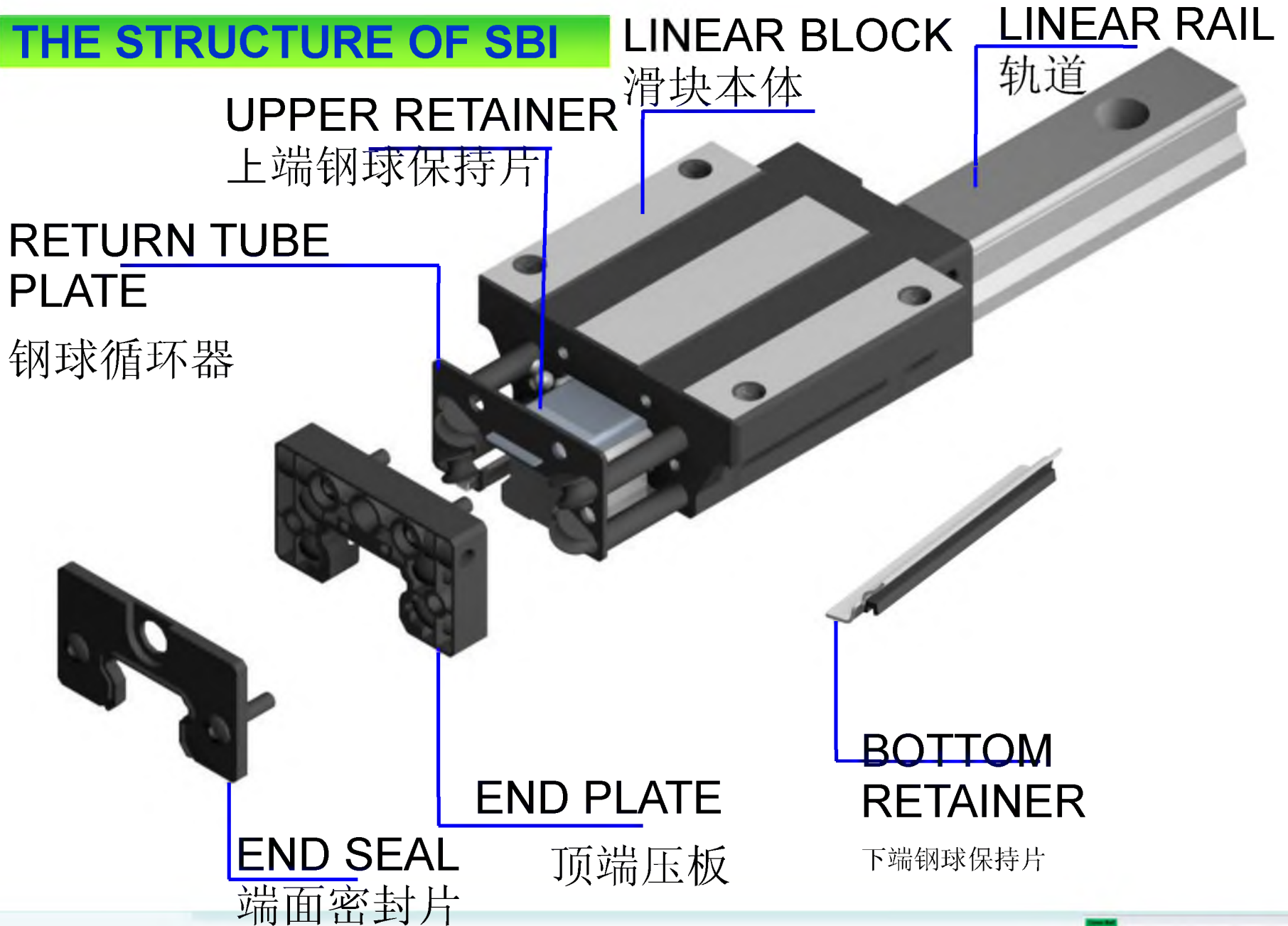
INTANGIBLE
DIMENSIONS
极佳的互换性

VARIOUS
OPTIONS
多样的尺寸
选择

SELF-ADJUSTING
自动调心

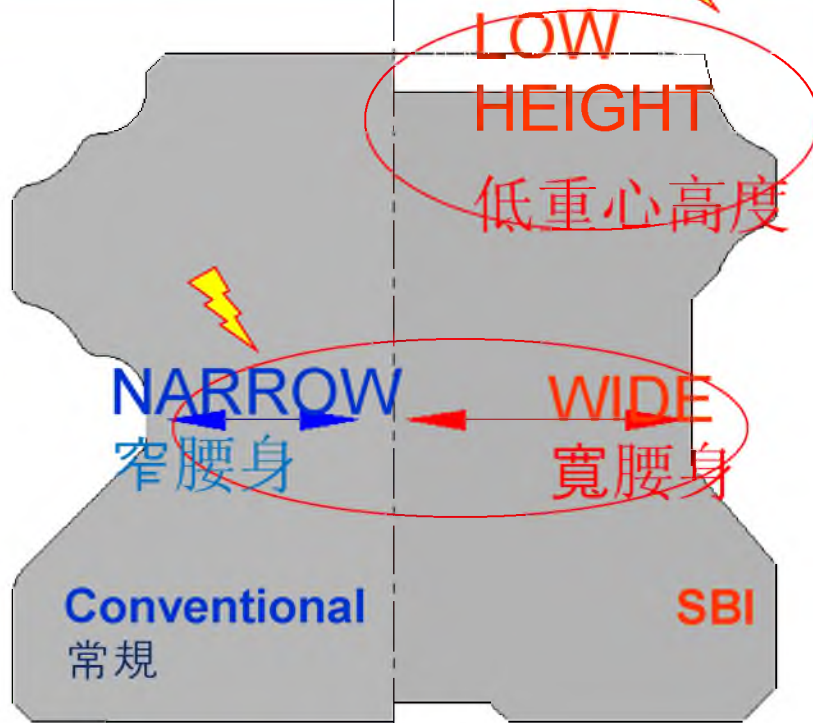


THE STRUCTURE OF SBI



ANATOMY OF SBI RAIL

SBI轨道剖面图



- ✓ HIGH RIGIDITY STRUCTURE
高刚性結構
- ✓ SIMPLE SHAPE 简洁的几何形状
[REDUCES AREA FOR DEBRIS TO SETTLE]
- ✓ IMPROVED RUNNING PRECISION
直线度公差可精确控制
- ✓ LOWER CENTER 更低的重心高度
- ✓ HRC60±2 HIGH FREQUENCY HEAT TREATMENT 高频淬火处理HRC60 ±2

SBI Rail is designed with a low profile and wide base. This characteristic allows greater stability in operation and during manufacture

Results in greater linear precision!

轨道的设计调低了重心，加宽了腰身；

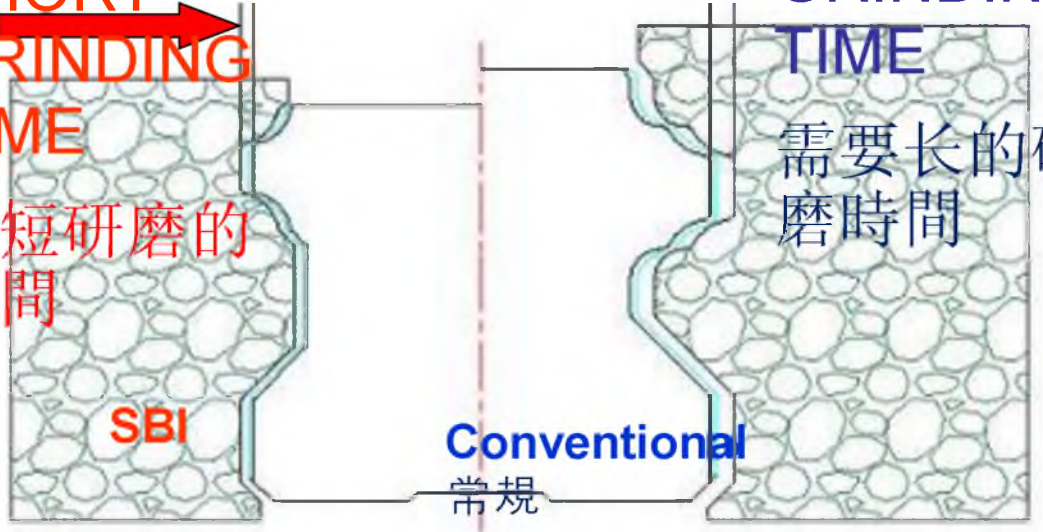
这个特征提高了刚性，生产时也更利于控制轨道的加工精度；

最终使得轨道的直线精度得到较大的提高。

HIGH RIGIDITY STRUCTURE OF RAIL 轨道高刚性结构

REDUCING MANUFACTURING TIME IN HALF
減少了一半的研磨時間

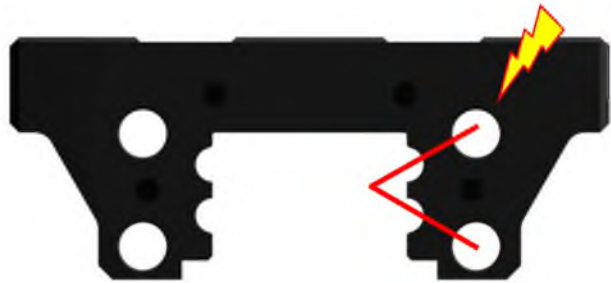
SHORT GRINDING TIME
縮短研磨的時間



PROCESSING IMPROVEMENTS RESULT IN LOWER COST TO MANUFACTURE.

新的改進設計可降低軌道的製造成本；

ANATOMY OF THE SBI BLOCK SBI滑块的剖面图



✓ VERY RIGID STRUCTURE

提高滑块刚性

✓ LARGER CIRCULATION RADIUS FOR THE SMOOTH MOVEMENT

加大循环半径使得运转更顺畅

✓ LONGER BLOCK LENGTH FOR HIGHER LOAD CAPACITY

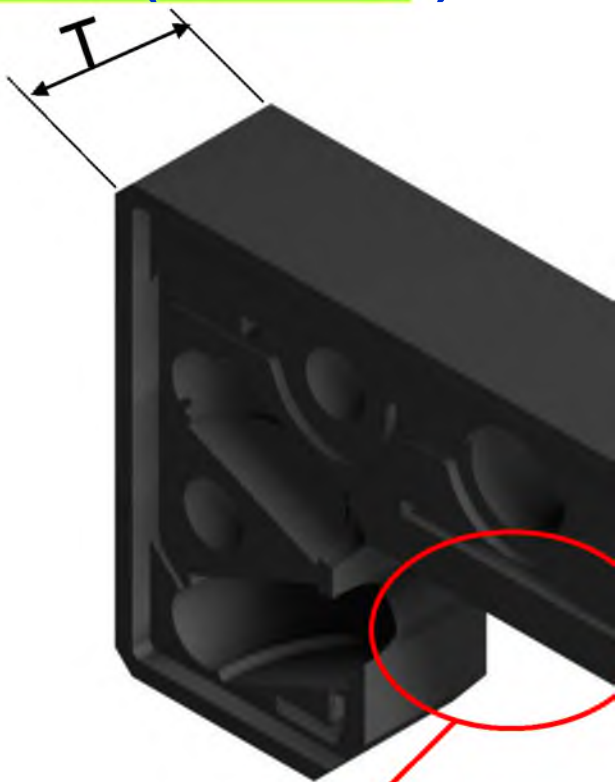
滑块长度加长提高了负载容量

✓ LOW CENTER 减低重心高度

✓ HrC60±2 BEARING STEEL

材质轴承钢，高频淬火 HrC60±2

END PLATE (顶端压板)



THE PART OF
UPPER/BOTTOM RETAINER
FOR THE SELF-ALIGNING

新设计2个部位允许自调整；
滑块安装时可以更准确；

ENGINEERED PLASTIC FOR THE HEAT AND CHEMICAL RESISTANCE

塑料材料更耐热；化学稳定性极好；

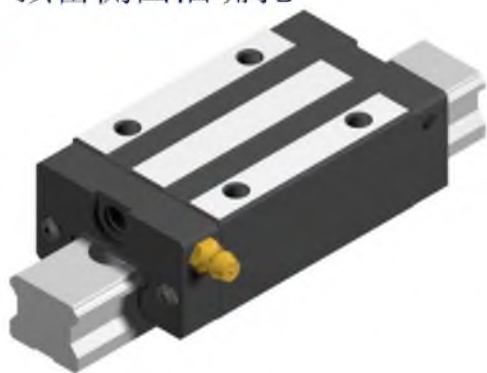
✓ **THINNER ENPLATE (MORE BLOCK)**

可储存和吸收更多润滑脂

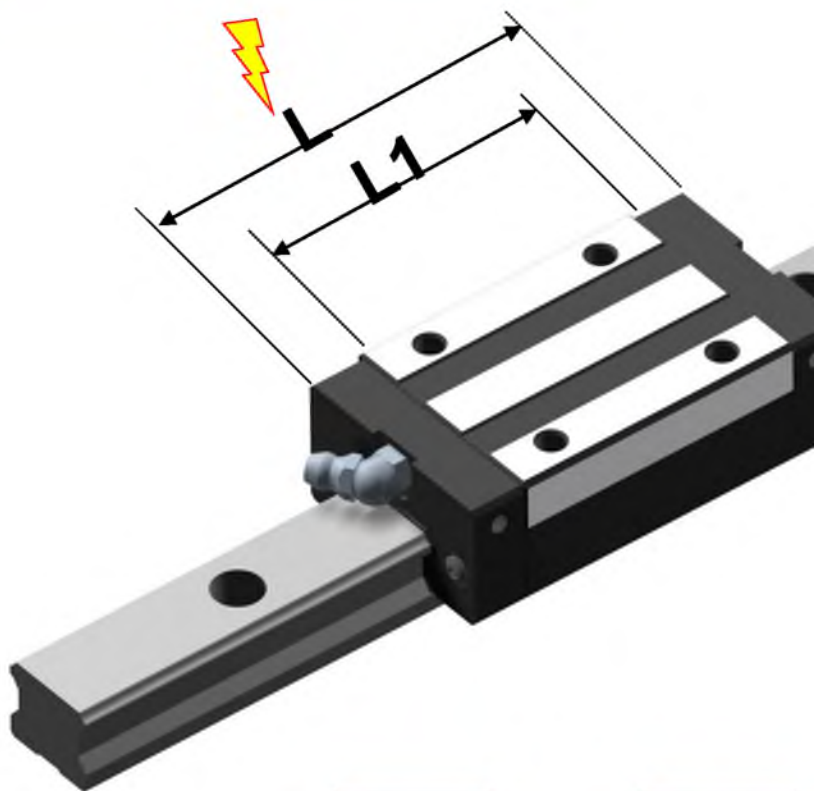


SIDE NIPPLE HOLE

预留侧面油嘴孔



END PLATE(顶端压板)



型号	SBG1 5	SBI15	SBG2 0	SBI20
L	60.8	63.8	77.2	79.8
型号	SBG1 5	SBI15	SBG2 0	SBI20



THINNER
ENDPLATES AND
LONGER BLOCK
YIELDS HIGHER
LOAD CAPACITY
WITH MINIMAL
CHANGE IN
OVERALL LENGTH

SBG2 5	SBI25
86.9	92
SBG2 5	SBI25

缩短了顶端压板长度；
同时加长了本体长度；
滑块负载得到提高；
滑块在总的长度上
变化很小；



UPPER/BOTTOM RETAINER

钢球保持片



[UPPER
RETAINER]

上端钢球保持片



INTEGRATED SEAL 整体压制防尘条

[BOTTOM RETAINER] 下端钢球保持片

✓ RIGID PLATE TO RETAIN
STEEL BALLS

保持鋼珠的高强度板材

✓ BALLS ARE KEPT INSIDE
THE LOAD ZONE LONGER
使得更多的钢球受力

✓ INTEGRATED SEAL
PREVENTS ENTRY OF
CONTAMINATION

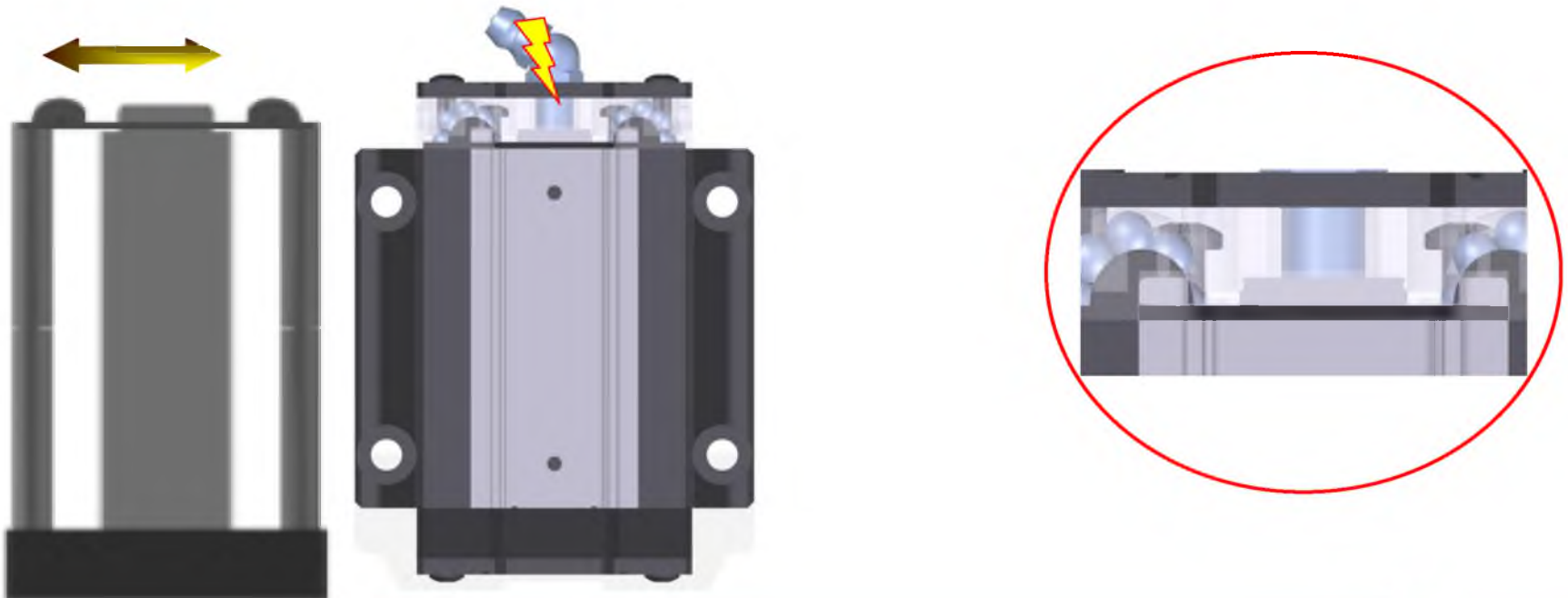
整体压制防尘条效果更好

SELF-ALIGNING AND KEEPING BALLS INSIDE

✓内部钢球运转

✓ **Ball retainer plates now snap assemble to the blocks. This unique assembly method allows an amount of Internal SELF-ALIGNMENT and load sharing while maintaining smooth ball recirculation.**

通过创新设计的钢球保持片，使得钢球在承受负载时可自动调整和分配受力；这样滑块在运动时更加顺畅；

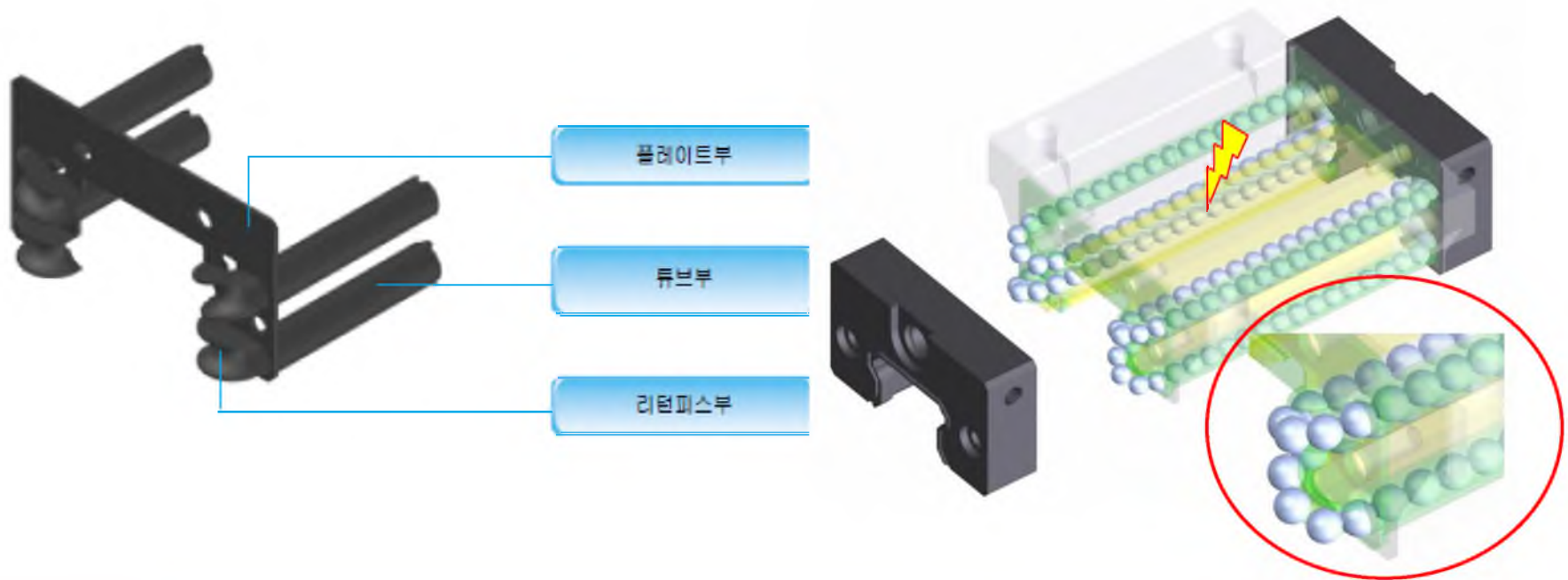


RETURN TUBE PLATE 钢球循环器

✓ LOWER OPERATING NOISE 更低的运转噪音;

TAKING AN ADVANTAGE FROM THE SBG SERIES' RETURN TUBE PLATE.

IT CREATES EXCELLENT ROLLING PERFORMANCE,
可承受更大的钢球碾压力;



INCREASED LOAD CAPACITY THROUGH INCREASED BODY LENGTH

加长本体长度提高滑块负载；

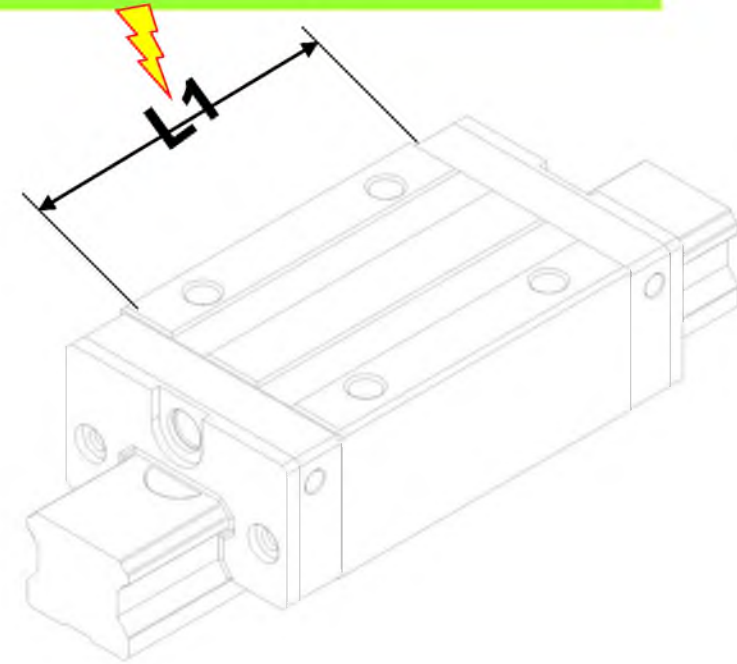
L1 IS 20% GREATER THAN WITH THE SBG BLOCK.

(L1尺寸比SBG滑块加长了20%)

GREATER LENGTH = MORE BALLS IN CONTACT = GREATER LOAD CAPACITY.

可容纳更多钢球滑块负载提高。

L1 LENGTH	SBG	SBI
15SL	38.8	45.2
20SL	50.8	56.8
L1 LENGTH	SBG	SBI

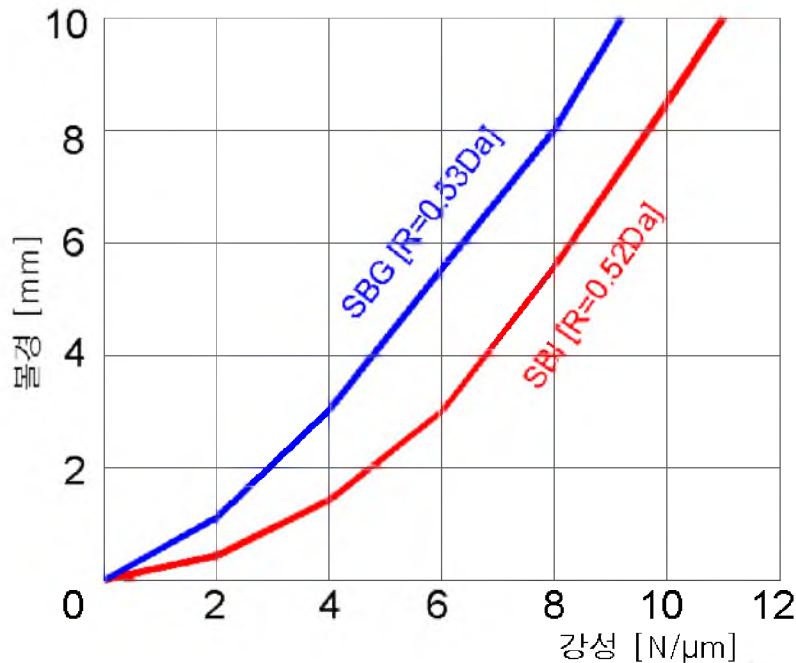


[DIMENSIONS单位 :mm]

IMPROVEMENT OF CAPACITY THROUGH IMPROVED RACE CONFORMITY

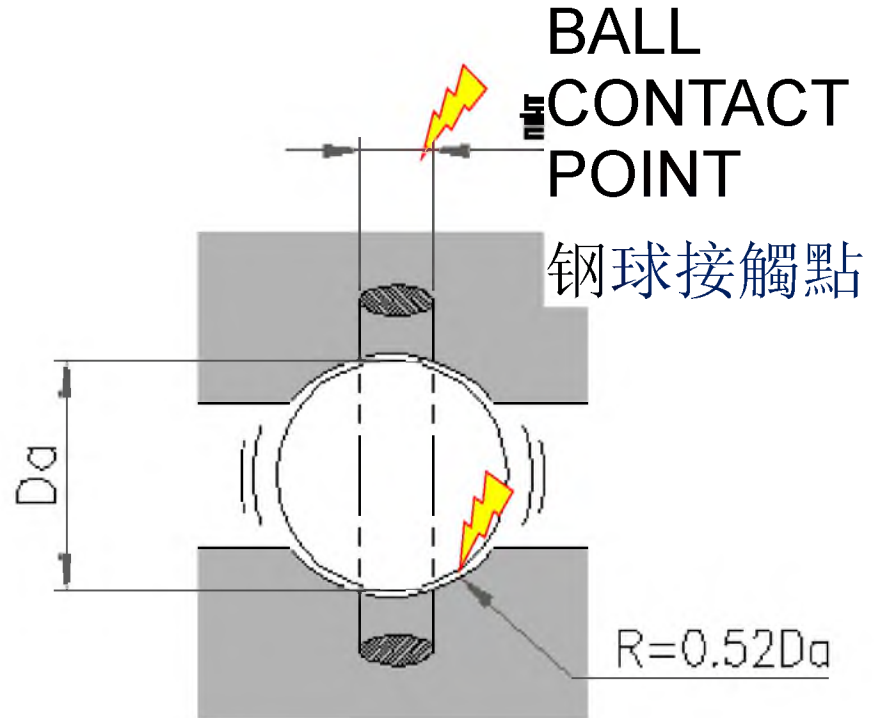
滚道的改进设计

IMPROVED GRINDING PROCESS ALLOWS THE RACE CURVATURE TO VERY CLOSELY MATCH THE BALL RADIUS WHILE MAINTAINING POINT CONTACT . (.52 vs. .53) 改进的滚道圆弧可与钢球贴合的更紧密；



DIFFERENT RIGIDITY BY CURBATURE [1 BALL]

1个钢球的受力曲线

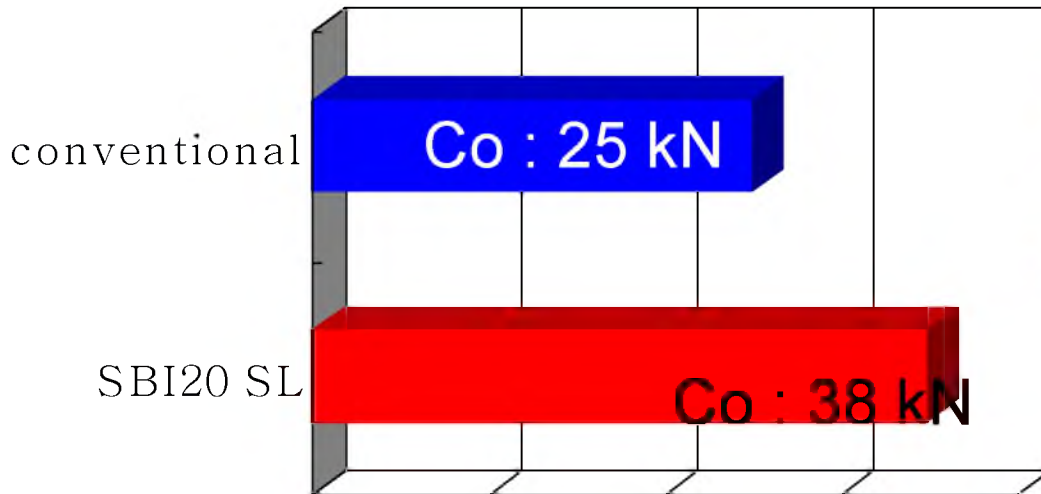


※ THE BETTER THE RACE CONFORMITY, THE HIGHER THE CAPACITY

IMPROVED LOAD CAPACITY 提高了負載容量

IMPROVED LOAD CAPACITY OF THE SBI SERIES

SBI系列的的負載容量提高了40%;



LOAD CAPACITY INCREASED 40%
負載容量增加了40%

※ C : DYNAMIC LOAD RATING
动负载 [kN]

C_o : STATIONARY LOAD RATING

静负载 [kN]

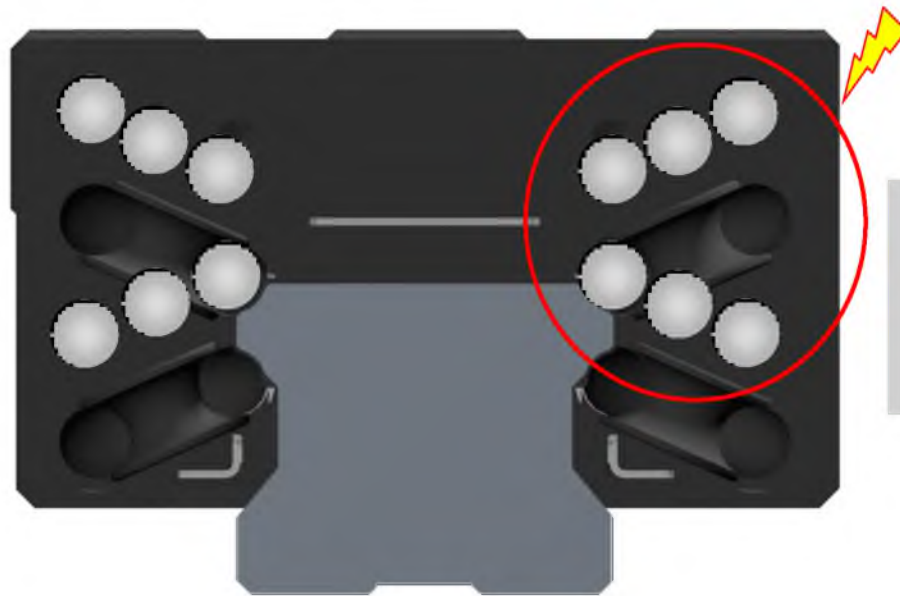
	SBG 15	SBI15	SBG20	SBI20	SBG25	SBI25
C	8.3	14.1	14.2	22.2	20.9	31.5
		SBI15	SBG20	SBI20	SBG25	SBI25

EXCELLENT ROLLING PERFORMANCE AND LOW NOISE

優秀輾壓表現和低噪聲

NEW BALL CIRCULATION STRUCTURE CREATES **EXCELLENT ROLLING PERFORMANCE AND LOW NOISE EVEN WITH HEAVY PRELOAD [K2,K3].**

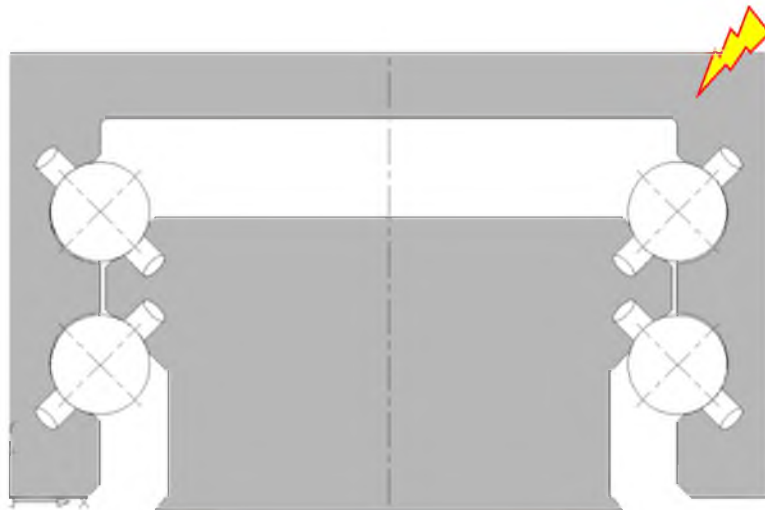
新鋼球循環結構創造優秀輾壓表現和低噪聲；可承受更大的預壓；



SMOOTH
CIRCULATION
鋼球循環更順暢

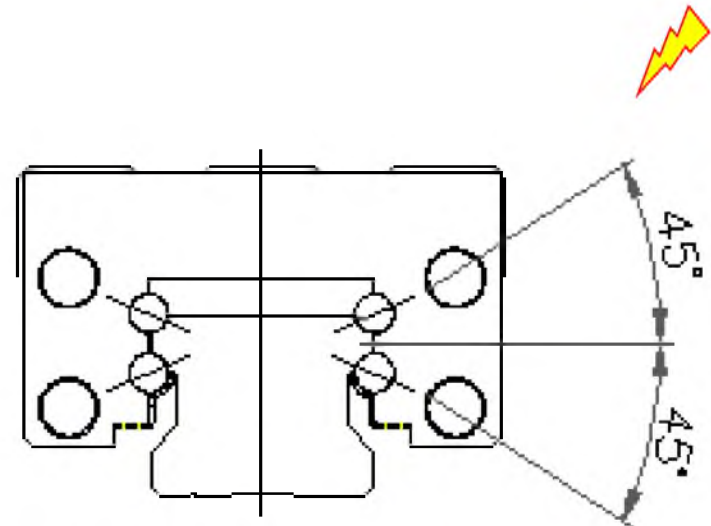
NEW STRUCTURE MAINTAINS THE ADVANTAGES FROM SBG STYLE 新的钢球受力角度

- ✓ TWO POINT CONTACT IN CIRCULAR ARC GROOVE
- ✓ 圆弧滚道，2点接触；SMOOTH PERFORMANCE, EVEN UNDER HIGH LOAD 承受负载后运转更顺畅；



[TWO POINT CONTACT STRUCTURE OF CIRCULAR ARC GROOVE] 二點圓弧凹線接觸結構

- ✓ 45° ANGLE OF CONTACT
- FOUR ROWS OF CIRCULAR ARC GROOVE CONTACT BALLS AT AN ANGLE OF 45 DEGREE.
- 钢球受力角度45度。

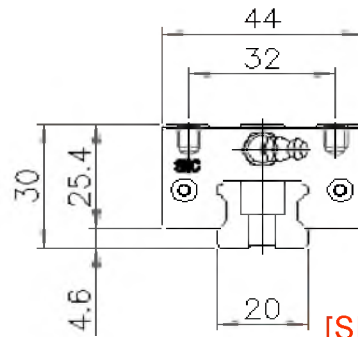


[45° ANGLE OF CONTACT]

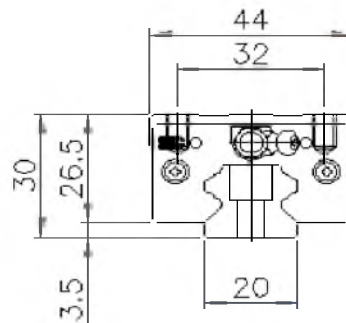
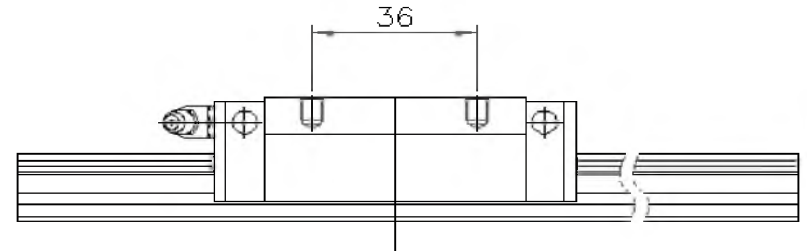
NEW STRUCTURE MAINTAINS ADVANTAGES FROM SBG TYPE 新旧型号安装尺寸相同

THE SAME DIMENSIONS 同様计量单位;

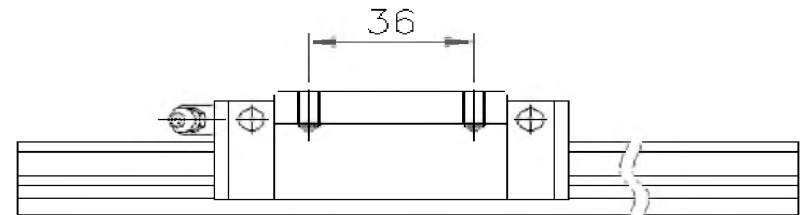
THE DIMENSIONS OF HEIGHT, WIDTH AND MOUNTING HOLES ARE THE SAME AS SBG SERIES SLIGHT VARIATION IN BLOCK LENGTH.



[SBI20L ASSEMBLY DIMENSIONS] 梟編維度



[SBG20SL ASSEMBLING DIMENSIONS] 梟編維度



COMPARISON DATA新旧型号数据对比

ITEMS滑块型号	SBG20SL	SBI 20 SL	SHS20V
動態負載容量	14kN	22kN	22.3kN
静态負載容量	25kN	38.2kN	38.4kN
ANGLE OF CONTACT受力角度	45°	45°	45°
RADIUS OF CURVATURE麴率半徑	53 %	52 %	52 %
ROW NO. OF BALL钢球列数	4	4	4
BLOCK LENGTH滑块长度	50.8 mm	56.8 mm	59 mm
DIAMETER OF BALL钢球直徑	3.969 mm	3.5 mm	3.5 mm
ITEMS滑块型号	SBG20SL	SBI 20 SL	SHS20V

NOISE LEVEL TEST FOR SBC PRODUCTS

噪聲級測試為SBC產品



TEST METHOD 測試方法

■ HOW TO TEST 如何測試

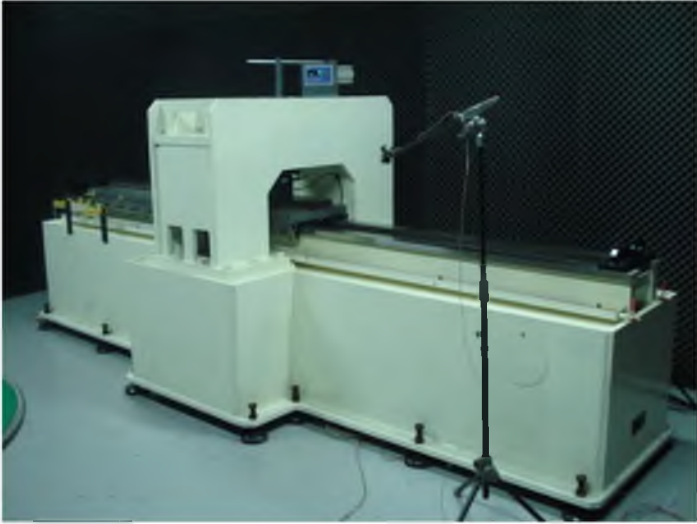
[1] LINEAR RAIL SYSTEM IS TESTED AT THE SPEED OF LOW, MEDIUM AND HIGH IN THE SEMI-ANECHOIC CHAMBER

直线导轨被測試：以低速、中速和高速在SEMI-ANECHOIC专用房間内运动

[2] EVALUATE AVERAGE VALUE AFTER REPEAT-OPERATION：重覆操作以後評估平均值

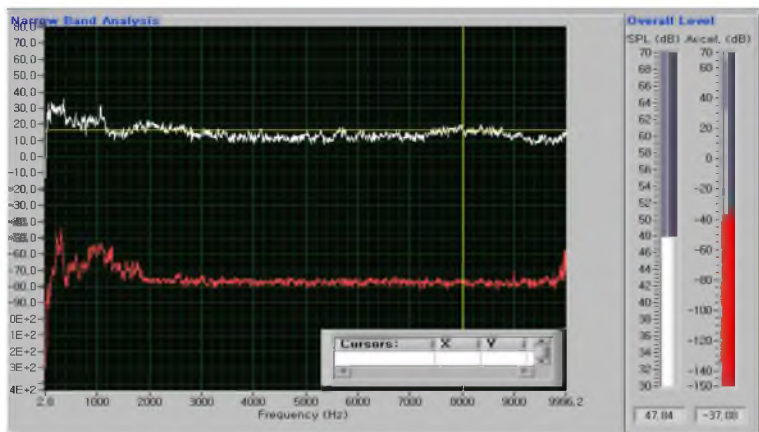
[3] TEST CONDITION 試驗條件

- LOW SPEED 低速：420 mm/sec
- MEDIUM SPEED 中速：840 mm/sec
- HIGH SPEED 高速：1250 mm/sec
- TESTED ITEMS 被測試的型号：
 - SBI25 FLL [SBC]
 - SHS25 C [THK]
- GREASE APPLIED 使用潤滑脂

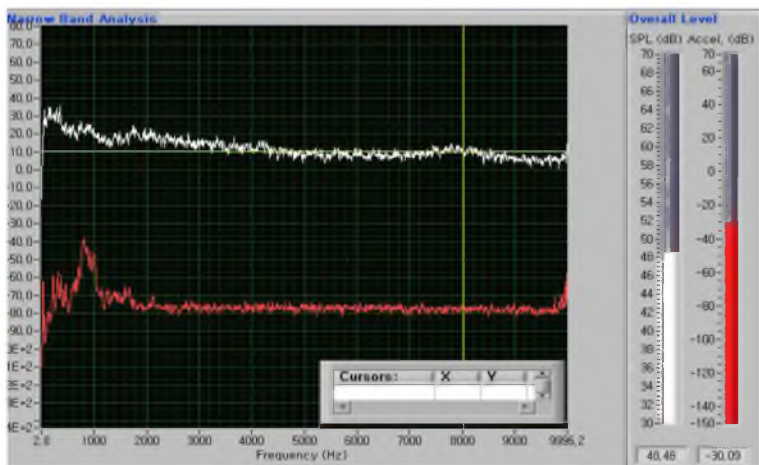


[SEMI-ANECHOIC CHAMBER AND NOISE
LEVEL TEST EQUIPMENT]
SEMI-ANECHOIC 専用 房 間 和 噪 聲 級 試 測 器 材

LOW SPEED TEST 低速測試



[SBI25-T1]



[SHS25-T1]

■ TEST SPEED 測試速度 : 420 mm/sec

Number of test 測試數量		THK [SHS 25]
T1		48.48
T2		49.25
T3		48.83
T4		49.03
T5		49.22
Average 平均		48.96
Number of test 測試數量		THK [SHS 25]

• UNIT : dB

• The deviation value for average noise

• 偏差價值為平均噪聲

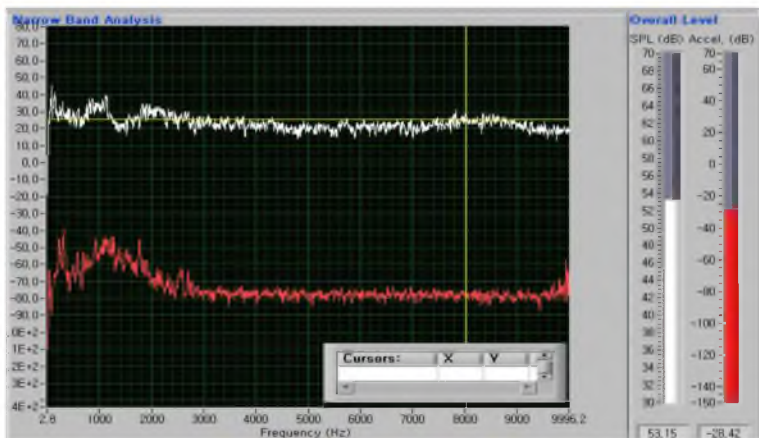
“+” : SBC product with higher noise

SBC產品以更高的噪聲

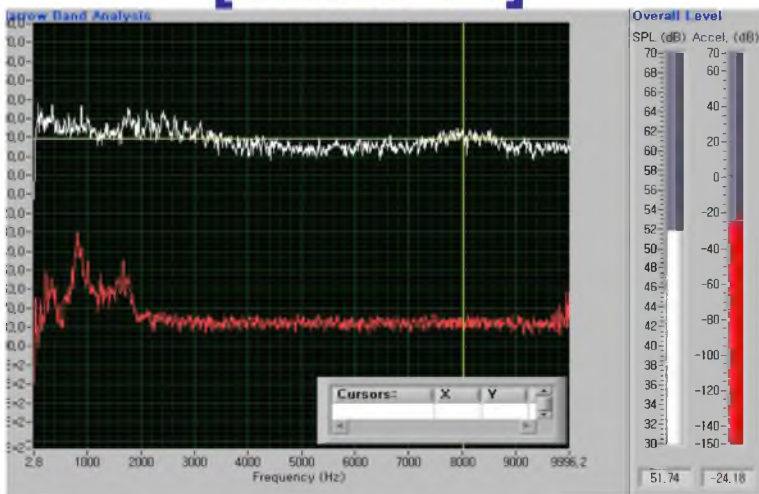
“-” : SBC product with lower noise

SBC產品以更低的噪聲

MEDIUM SPEED TEST 中速測試



[SBI25-T1]



[SHS25-T1]

■ TEST SPEED 測試速度: 840 mm/sec

Number of test 測試數量		THK [SHS 25]
T1		51.74
T2		51.97
T3		51.89
T4		52.01
T5		52.11
Average 平均		51.93
Number of test 測試數量		THK [SHS 25]

• UNIT : dB

• The deviation value for average noise

• 偏差價值為平均噪聲

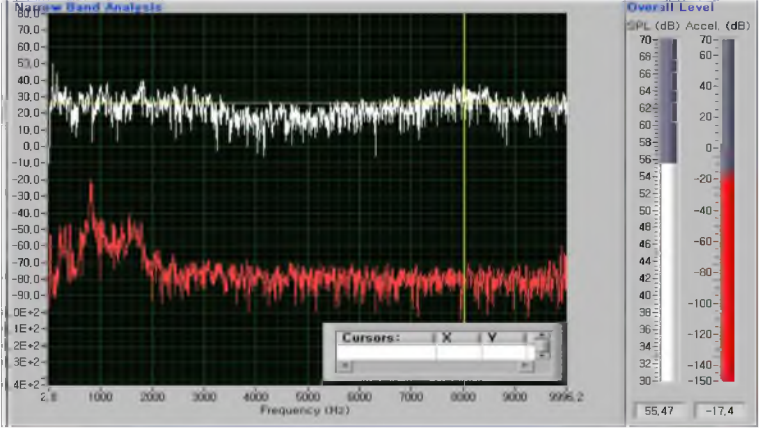
“+” : SBC product with higher noise

SBC產品以更高的噪聲

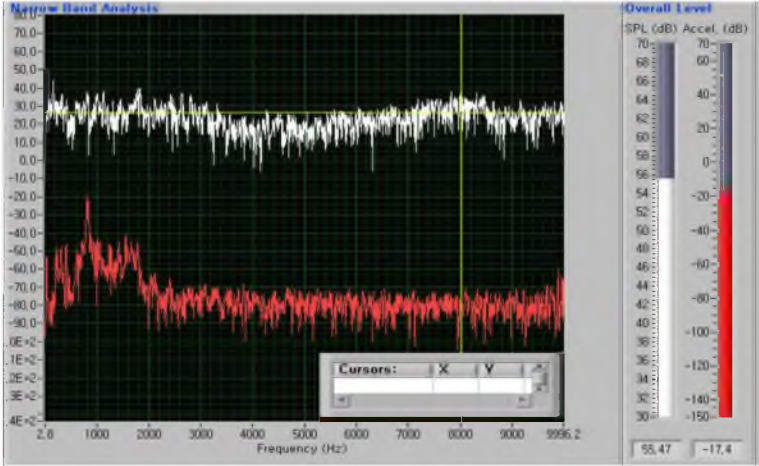
“-” : SBC product with lower noise

SBC產品以更低的噪聲

HIGH SPEED TEST 高速測試



[SBI25-T1]



[SHS25-T1]

■ TEST SPEED 測試速度: 1250 mm/sec

Number of test 測試數量		THK [SHS 25]
T1		55.47
T2		53.80
T3		53.48
T4		52.01
T5		52.11
Average 平均		54.00
Number of test 測試數量		THK [SHS 25]

• UNIT : dB

• The deviation value for average noise

• 偏差價值為平均噪聲

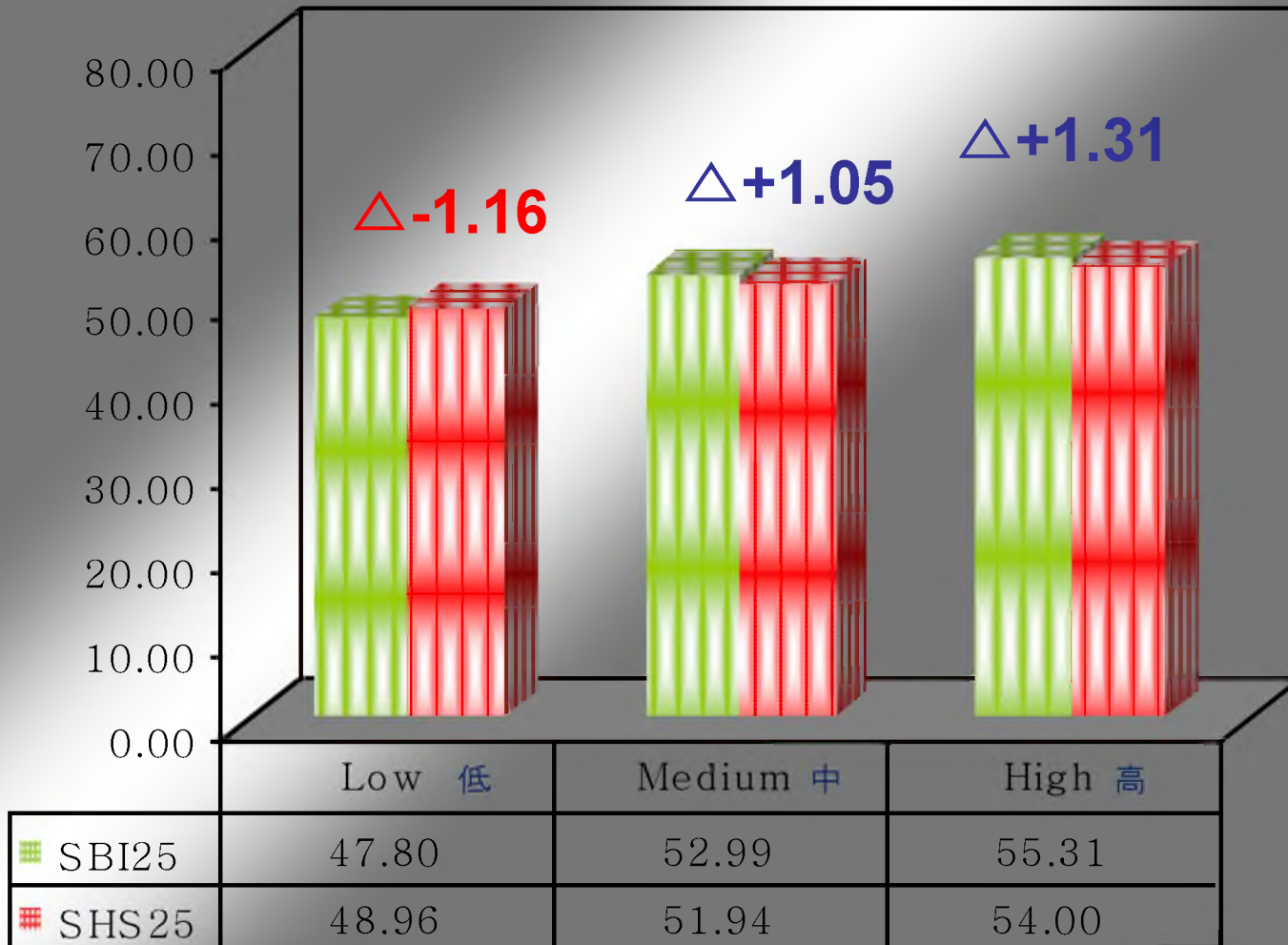
“+” : SBC product with higher noise

SBC 產品以更高的噪聲

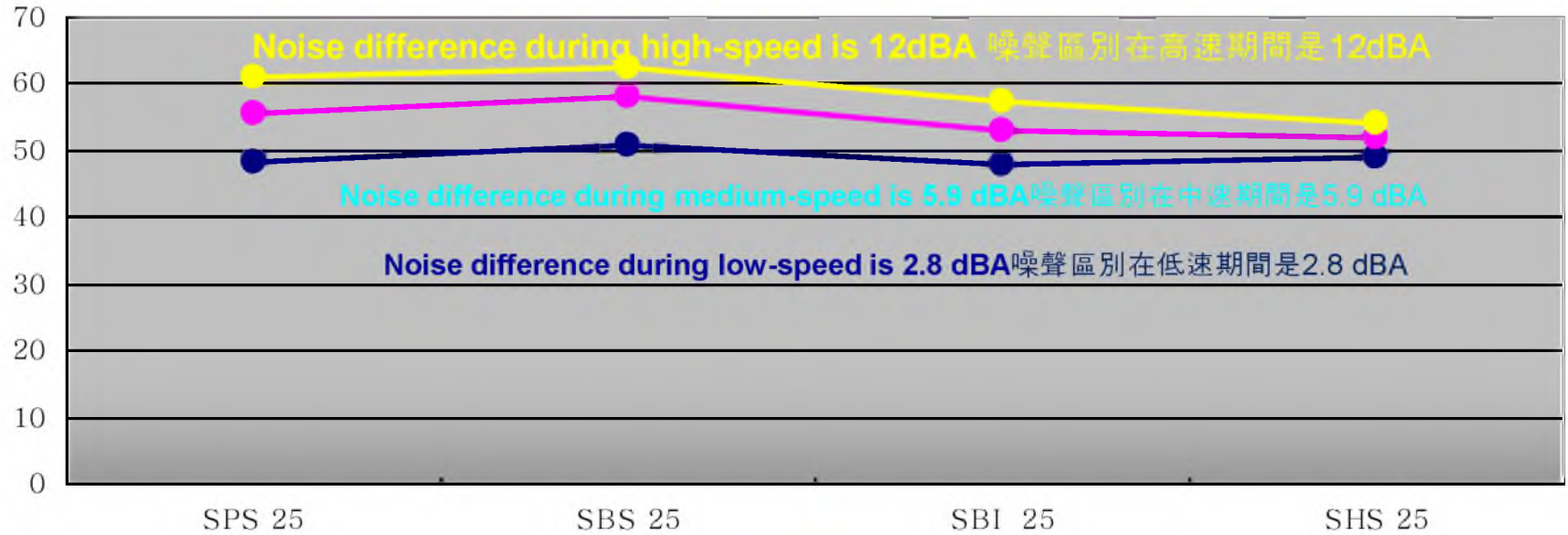
“-” : SBC product with lower noise

SBC 產品以更低的噪聲

TEST RESULT 測試結果



COMPARISON DATA 比較數據



TEST SPEED 測試型号	SBS 25 [SBC STANDARD]	SBI 25 [SBC NEW STANDARD]	SHS 25 [THK RETAINER]
在低速时的平均噪音	50.67	47.80	48.96
在中速时的平均噪音	57.85	52.99	51.94
TEST SPEED 測試型号	SBS 25 [SBC STANDARD]	SBI 25 [SBC NEW STANDARD]	SHS 25 [THK RETAINER]