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s)))e AUDIOTECHNIK

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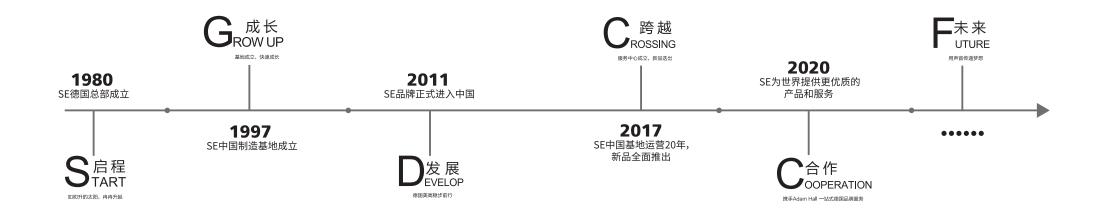
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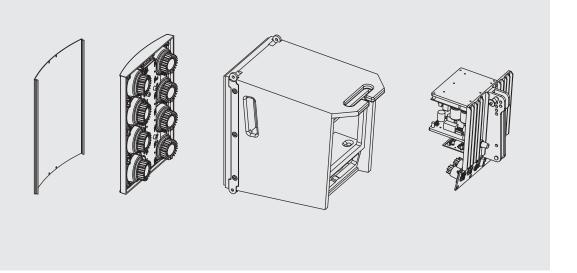




2018山西省第十五届运动会开幕式

2020大型交响音乐会《黄河入海》

M-FXA 产品解剖图 M-FXA PRODUCT ANATOMY



M-FXA 系列简介 M-FXA INTRODUCTION

M-FXA系列由M-FXA、M-FXA SUB和M-FXA FS组成,是SE Audiotechnik在2019年推出的全新高端固定安装系统。在那些对音质具有极高要求的剧院剧场、体育场馆、礼堂、教堂及其他固定安装场所,这种灵活紧凑的高端无号角有源阵列扩声系统可以带给您完美的解决方案。

M-FXA series is composed of M-FXA, M-FXA SUB and M-FXA FS, and it is the brand-new high-end installation system released by SE Audiotechnik in 2019. No matter for theatres, sports stadiums, auditoriums, churches or other installation venues with high requirement for sound quality, this flexible and compact high-end hornless active array system offers you perfect audio solution.

如今,建筑设计日新月异,在追求建筑创意与美观性的同时,复杂的建筑结构,特殊的建筑材料,更是对建筑 内扩声设施提出了更高的要求。扩声设备不仅需要更现代的造型,与现代建筑设计相得益彰,还需要在具有 挑战性的建声环境下,提供精准卓越的指向性控制能力。与此同时,改造翻新的建筑结构,为了确保安全性, 往往需要更轻质、更耐用的扩声系统,以免对建筑结构造成损坏。

Nowadays, architectural design changes with each passing day. In pursuit of construction innovation and aesthetic sense, complicate architectural structure and special architectural materials bring higher requests for indoor PA. PA devices need not only more modern appearance to blend into the building design, but also more accurate and outstanding directivity. At the same time, the refurbished and remodeled building always needs lighter and more durable PA system to avoid causing damages to the structure.

M-FXA系统汇集灵活性、美观性、便捷性与高清晰度、高均匀度于一体,有效满足了以上各种固定安装场合的声学要求。清晰卓越的音质与均匀的声场,确保听音区无死角覆盖且响应均匀。精准卓越的指向性控制能力,避免天花板等障碍物回声。结实可靠的压铸吊挂件被铝制螺丝牢牢锁固,配合严格把控的结构间隙,可以极致减小箱体间的异常振动。小环、灵活的造型与周边环境浑然天成。

M-FXA system integrates the flexibility, aesthetics, portability with high clarity and uniformity, effectively meets the sound coverage need of installation venues above. The clear and outstanding quality and well-balanced sound field assures a consistent coverage and sound uniformity. Accurate directivity avoids the echo from ceiling and other obstacles. Extraordinary structural precision, super strong die-casting aluminum frame and rigid aluminum screw holder candiminish the needless resonance. The compact and flexible appearance is in perfect harmony with its surroundings.







M-FXA 技术亮点 M-FXA TECHNOLOGY HIGHLIGHT

1. 无号角, 小尺寸, 高保真

PRISTINE ACOUSTIC REPRODUCTION WITH HORNLESS DESIGN, SMALL SIZE WITH HIGH SPL

M-FXA通过采用HiFi级无号角设计和2.8寸小型扬声器来确保剧场剧院人声的高保真度。相比于号角音响,无号角设计使得声音不经过号角压缩,自然释放,声音更清晰,更自然真实。此外,SE研制的小尺寸中高频扬声器单元对折环的反相振动和音盆的分割振动进行了精准的控制,确保系统中所有扬声器单元都工作在理想的活塞运动状态、以此实现人声的高还原度。

M-FXA adopts the HiFi-level 2.8" speakers with hornless design to ensure that the sound is reproduced naturally without horn compression which is clearer and closer to the real sound compared to that of horn speakers. In addition, the small sized middle and high frequency drivers control the reverse vibration and breaking vibration accurately, which ensures all drivers move in a perfect piston direction for reproducing the real sound.

2. 精准指向控制,均匀声场覆盖,弥补建声环境缺陷

ACCURATE SOUND DIRECTION CONTROL, EVEN SOUND COVERAGE, MAKE UP FOR DISADVANTAGE OF SOUND

M-FXA 正面有7只1"无号角直接辐射高音和8只2.8"中音扬声器采用对称方式布置, 紧凑排布。一只音箱就是4组双2.8"线阵列音箱的组合体,而且对比普通线阵更紧密 的排列在一起,以此改善音箱垂直和水平方向的覆盖。因M-FXA对声音覆盖的均匀度 和清晰度有着不同凡响的控制力,有效弥补了建声环境导致的声干涉问题。

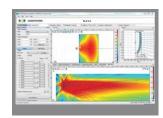
M-FXA contains 8 pieces of high efficiency 2.8" full range speakers and 7 pieces of 1" direct radiate tweeter w/o horn, all aligned compact and symmetrical. One speaker system can already be considered as four combined line arrays, which improves the sound coverage both vertically and horizontally. Thanks to the distinguished control for sound consistence and clarity of M-FXA, it is able to offset the sound interference problem caused by the sound building environment effectively.

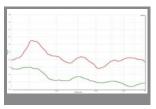
3.大功率D类功放,大声压级

LARGE CLASS D AMPLIFIER AND HIGH SPL

M-FXA采用全新的600W D类功放,动态余量充足,最大声压级为129dB,体积小、重量轻、效率高,内置精准调试的升级版DSP,多段限幅,有效保护,确保系统能在安全稳定的运行状态下输出完美音色,即使在极端环境下,仍然保证系统安全工作稳定运行。由此,M-FXA拥有大声压且不易失真的特性、明亮清晰。

M-FXA's distinct sound is achieved by an upgraded 600 W class-D power amplifier, delivering 129 dB max SPL with enough headroom. Small size, light weight, high efficiency and upgraded accurate internal DSP, as well as the effective limiter ensure the system to reproduce perfect sound under safe and stable operation even in extreme SPL.





── 带号角压缩高音谐波失真曲线 (1M/1W) ── 无号角球顶高音谐波失真曲线 (1M/1W)







4. EASE模拟,智能便捷

EASE. GLL IS AVAILABLE, BOTH INTELLIGENT AND CONVENIENT

M-FXA采用模块化设计,通过配套的EASE.GLL数据,可以快速在EASE与EASE Focus中对声场覆盖、声压级水平、吊挂角度及其它相关参数进行模拟,以确保良好的音响效果,节省搭建时间。对于剧场剧院、体育馆、音乐厅等固定安装场所而言,EASE数据大大优化了系统的声学设计,为用户节省更多的时间,达到更佳的效果。

M-FXA adopts modular design. With EASE.GLL data for M-FXA, users can simulate audience coverage, sound pressure levels, rigging and other parameters in EASE and EASE Focus software to ensure good sounding results and faster setup times. For installations in theatres, stadiums, music halls and others, EASE helps to optimize acoustic design of sound system and to save more time for better results.

5. 可靠固定, 优雅精致

RELIABLE FIXATION AND ELEGANT APPEARANCE

M-FXA配置了3个固定点,满足工程固定安装需求。7档线阵列箱体夹角调节满足了对场地均衡一致的声音覆盖角度的需求。全新设计的网罩完美展示了M-FXA高端优雅的外观特色,极其紧凑低调的尺寸设计,让其易于隐藏。明装,可作剧场装饰,与舞美设计完美融合;暗装,也极易于隐藏。

Equipped with 3 rigging points can meet the demands of installation demand. 7 spay angles linear arrays can meet the demand of consistent sound coverage. Brand-new grills perfectly demonstrate the high-end elegant appearance of M-FXA. The extremely compact size and low-profile design makes it easy to hide. M-FXA exposed in the air, can be an elaborate decoration for the theatre. What is more, it is also very convenient to hide it when necessary.

M-FXA FS 紧凑型可吊挂有源低音系统 COMPACT FLYABLE ACTIVE BASS SYSTEM

M-FXA FS 可吊挂低音音箱作为M-FXA线阵列系列中的低频延展部分,通过两个独特设计的6"X9"低音单元,整个箱体保持了苗条低调的设计。一只低音的高度正好为两只M-FXA的高度,保持了整个线阵的协调性。

M-FXA FS fly-sub is a bass extension element to join M-FXA line array series. By employing two specially designed 6 by 9 inch woofers, the subwoofer maintains a slim and discreet design. The height is exactly double the size of two M-FXA's, which complements the overall system dimensions.





1.小身材,高性能

COMPACT ENCLOSURE AND HIGH PERFORMANCE

M-FXA FS是与M-FXA系统配套使用的可吊挂低音扩展模块。通过使用两只精巧设计的6"x9"低音扬声器,该有源低音系统保持了M-系列家族苗条低调的设计风格。单只低音模块的高度正好是两只全频音箱M-FXA的大小,使得整串线阵的尺寸非常紧凑小巧。
The M-FXA FS is the long awaited flyable bass extension module for the well-known M-F3A line array system. By

The M-FXA FS is the long awaited flyable bass extension module for the well-known M-F3A line array system. By employing two specially designed 6 by 9 inch woofers, the subwoofer maintains a slim and discreet design. The height is exactly double the size of two M-F3A's, which complements the overall system dimension.

3.EASE模拟,配件优化 EASE SIMULATION, UPGRADED ACCESSORIE

M-FXA FS的EASE GLL数据,可允许用户快速在EASE与EASE Focus 中对低音进行模拟,并搭建出满足不同扩声需求的系统,以确保良 好的音响效果和更快的设置时间。优化的吊件和全新的吊架更具灵 活性,确保低音能快速融入整个M-FXA线阵系统中。

EASE GLL files is available for M-FXA FS, which can be simulated fast in EASE Focus, and build a system to meet different sound coverage requirements to guarantee the good sound effects and faster setup time. Upgraded rigging accessories and new rigging brackets are more flexible to assure the bass can be integrated to the whole M-FXA line array system.

2. 智能配置,高效便捷

INTELLIGENT SETUP AND HIGH-EFFICIENT, CONVENIENT

M-FXA FS内置全新设计的800W D类功放和24-bit/48kHz DSP, 通过使用不同模式拨动开关,可减少吊挂式低音与M-FXA等其他 音箱模块进行组合搭配时的安装时间。

M-FXA FS contains a newly designed 800W class-D power amplifier and is equipped with 24-bit/48kHz DSP.Built-in factory presets reduce setup times with M-FXA and other existing M-Line systems in various configurations.

4. 有效加强中低频力度 |MPROVE MID TO LOW FREQUENCY EFFECT|VELY

针对阶梯状的剧场剧院或报告厅等场合,地面堆叠的低音不能满足低频传输的需求,而可吊挂式的M-FXA FS就能很好地解决这一问题。配套M-FXA使用后,声音的中低频力度明显加强,声音更怜谁

For occasions such as theaters or lecture halls with terraced seats, the subwoofer stacked on the ground cannot meet the needs of low-frequency transmission. In this case, the flyable M-FXA FS can well solve this problem. When used together with M-FXA, the low and medium frequency intensity of sound is significantly enhanced and the sound is richer. and other existing M-Line systems in various configurations.



M-FXA SUB 倒相式有源低音系统 BASS-REFLEX ACTIVE SUBWOOFER SYSTEM

全新M-FXA SUB是M系列的低音音箱,该低音是由单12"扬声器单元配合倒相式木箱和升级的800W D类功放组成,其精密的设计和紧凑的尺寸保证了它在各种环境中都可以灵活地固定安装。重量仅为23KG。

The new M-FXA SUB is an upgraded subwoofer for M-Line. The Subwoofer consists of a single 12" driver in a bass-reflex configuration and an upgraded 800 watts class-D amplifier. Its efficient design and compact size guarantees flexible placement in all kinds of environments. The weight is only 23KG.



1.优化设计,最大声压级132dB UPGRADED DESIGN, THE MAX SPL IS 132 dB

SE两点堆叠系统。安全系数更高,堆叠安装更简单。改进导音口设计,降低了气流风噪,提高系统最大声压级,改善了整体性能全新设计的功放输出更有力的低音,最大声压级132dB。内置灵活的DSP系统,无需外接信号处理器,为用户节省设备成本。

A two-point SE rigging system allows for safe & easy stacking. The improved port design increases the overall performance, reduce the port-noise and improve the maximum system SPL. The newly designed amplifier helps to deliver loads of punch with 132 dB Max. SPL. Equipped with a cost-effective, yet flexible DSP system, there is no need for external signal processing.

2. 极致体积声压比

EXTREME RATIO OF SIZE TO SPL

M-FXA SUB拥有极致的体积声压比,体积小效率高,更易隐藏。同时单只重量仅为23kg,最大限度减少仓储与运输成本,减轻工作人员搬运负担。

M-FXA SUB has the extreme ratio of size to SPL, more small size with more efficient performance. At the same time, the single module is only 23 kg, to the most extent to reduce the werehouse and transportation cost, reduce the carrying burden for workers





3.即插即用,智能便捷 PLUG AND PLAY, INTELLIGENCE AND CONVENIENCE.

M-FXA SUB采用有源一体化设计,集成的内置预设能够帮助用户快速调用相关设置,来搭配不同的M-FXA系统。通过 选择专用的工厂预设,用户可以快速完成End-Fire(端射)或Cardioid心型低音设置。此外,用户还可以控制各种参数, 如增益、均衡器、滤波器、延时等。新的功放面板还可选用附带的防雨罩,保护产品免受雨淋或户外受潮。

M-FXA SUB applies the active integration design. Integrated presets help to quickly load different system setups to be used with various M-FXA configuration. Setting up an end-fire or cardioid setup can be done by choosing dedicated factory presets. Users can control various parameters such as gain, equalizer, filters, delay and more. The new amplifier panel can be extended with an additional rain-protection cover that helps protecting the electronics from rain or moist outdoor environment.

4.EASE模拟 EASE SIMULATION

M-FXA SUB配套的EASE GLL数据,可以快速在EASE与EASE Focus中进行模拟,并搭建出满足不同扩声需求的系统,以确保良好的音响效果和更快的设置时间。

EASE GLL files is available for M-FXA SUB, which can be simulated fast in EASE and EASE Focus, and build a system to meet different sound coverage requirements to guarantee the good sound effects and faster setup time.

CLASSIC CASE

经典案例



中国尊.报告厅

- 进驻北京第—高楼中国尊



印象楠溪江

——A'Design Award设计大奖2017/2018铂金奖









妫汭剧场

——2019中国北京世界园艺博览会

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CLASSIC CASE

经典案例















大唐芙蓉园凤鸣九天剧院

—— 大型梦幻诗乐舞剧《梦回大唐》黄金版



西安城墙

——《梦长安—大唐迎宾盛礼》·西安



펠号 M-FXA	Model name M-FXA
类型: 倒相式	Type: Bass-reflex
頻响范围 (-10dB): 100Hz-20kHz	Frequency response (-10 dB): 100 Hz – 20 kHz
额定功率 (RMS) : 300W 中音, 300W高音	Output Power (RMS): 300 W MF, 300 W HF
峰值声压级1: 130 dB	Max. SPL ¹ :130 dB peak
指向角度 (H x V): 120° x 16°	Dispersion (H x V): 120° x 16°
吊挂角度: 0°, 1°, 2°, 3°, 4°, 6°, 8°	Splay angles: 0°, 1°, 2°, 3°, 4°, 6°, 8°
扬声器单元 : 中音:8 x 2.8"钕磁单元,带冷却模块,0.75"音圈	Transducers: MF: 8 x 2.8" drivers with neodymium magnet and cooling module, 0.75" voice coil
高音: 7x 1"钕磁单元,带冷却模块,1"音圈	HF: 7x 1" with neodymium magnet and cooling module, 1" voice coil
DSP: 48 kHz, 24-bit DSP, 可拓展动态范围, 处理延时:1.1 ms	DSP: 48 kHz, 24-bit DSP processor with eXtended dynamics
信号处理: 多段限幅器, EQ, 滤波器	Signal processing: Multiband-limiter, EQ, filtering
保护 : 短路保护,过热保护,过流保护	Protection: Short circuit, overheating, over-current
控制: On/Off开关,8档数字开关控制	Controls: On/Off switch, 8-positon Level
(-50,-20,-10-6,-3,-2,-1,0) dB	adjustment (-50,-20,-10-6,-3,-2,-1,0) dB
8档箱体数量选择旋钮(1-8只)	8-position Line Units selector (1-8+ units)
信号输入/输出: Input signal: balanced XLR 3-pin female Link output: balanced XLR 3-pin male 电源输入/输出: Neutrik PowerCon (Max: 15 A)(最多只能电联6只)(220 V: 6 pcs)	Audio connectors: Input signal: balanced XLR 3-pin female Link output: balanced XLR 3-pin male Power connectors: Neutrik PowerCON (Max: 15 A) (Series can be at most 6 pcs) (220 V: 6 pcs)
最大吊挂数量: 16只	Rigging: 3-point rigging with SE rigging pins, up to 16 elements
堆叠/支撑数量:配合SE SFi堆叠架可用4只	with SE bumper frame(flown) / up to 4 elements with SE ground
配合SE U型架可用2只	stack frame / up to 2 elements with SE U-bracket
箱体材料/喷漆 : 12mm 精选多层板,黑色或白色聚脲漆	Cabinet: 12 mm plywood, black or white polyurea coating
尺寸 (W x H x D): 210 x 317 x 359 mm	Dimensions (W x H x D): 210 x 317 x 359 mm
重量: 8.3 kg	Weight: 8.3 kg
1.在自由场,使用12dB峰值粉噪信号测试,直接读取峰值数据。	${\it 1.Peak SPL from measurements with 12dB crest\ factor\ pink\ noise, whole\ space.}$

))) 结构图Specification



펜号 M-FXA FS	Model name M-FXA FS
美 型 : 倒相式低音	Type: Bass-reflex
頻响范围 (-10dB): 52Hz-143Hz	Frequency response (-10 dB): 52Hz–143 Hz
额定功率 (RMS): 800W, D类带SMPS功放	Output Power: 800 W Class-D with SMPS
峰值声压级1: 129 dB	Max. SPL¹: 129 dB peak
杨声器单元: 2x (6" x 9") 铁氧体单元, 2" 音圈	Transducers: 2x 6 by 9 drivers with ferrite magnet and 2" voice coil
指向角度: 全指向	Dispersion: Omnidirectional
OSP: 48 kHz, 24-bit DSP,可拓展动态范围,	DSP: 48 kHz, 24-bit processor with eXtended
处理延时:1.1 ms	dynamics processing, latency: 1.1 ms
信号处理: 音箱DSP预设,延时设置,EQ:HPF/LPF,参数EQ(Q,F,增益),	Signal processing: Speaker presets, Delay, EQ: HPF/LPF,Parametric
RMS限幅器,峰值限幅器,极性反转,哑音,输入增益,	EQ (Q, F, Gain), RMS Limiter, Peak Limiter, Phase Invert,
	Mute, Input Gain;
保护 : 短路保护,过热保护,过流保护	Protection: Short circuit, overheating, overheating
控制: LCD显示屏与数字无极旋钮控制	Controls: LCD Screen and digital encoder with push button
指示灯: 电源指示,信号指示,限幅指示,保护指示	Indicators: Power on, signal, limit, protect
信号输入/输出: Input signal: balanced XLR 3-pin female	Audio connectors: Input signal: balanced XLR 3-pin female
Link output: balanced XLR 3-pin male	Link output: balanced XLR 3-pin male
电源输入/输出: Neutrik PowerCon (Max: 15 A)	Power connectors: Neutrik PowerCON (Max: 15 A)
(最多只能串联6只)(220 V: 6 pcs)	(Series can be at most 6 pcs)(220 V: 6 pcs)
箱体材料/喷漆 : 15mm精选多层板,黑色或白色聚脲漆	Cabinet: 15mm plywood, black or white polyurea coating
尺寸 (W x H x D): 210 x 651 x 430 mm	Dimensions (W x H x D): 210 x 651 x 430 mm
重量: 21 kg	Weight: 21 kg

1.在自由场,使用12dB峰值粉噪信号测试,直接读取峰值数据。

1.Peak SPL from measwrements with 12dB crest factor pink noise,whole space.

))) 结构图Specification







____ 15 ___



型号 M-FXA SUB	Model name M-FXA SUB
类型 :倒相式低音	Type: Bass-reflex
頻响范围 (-10 dB) : 36Hz-145Hz	Frequency response (-10 dB): 36Hz–145 Hz
额定功率(RMS) : 800W	Output Power (RMS): 800 W
峰值声压级1: 133 dB	Max. SPL ¹ : 133 dB peak
扬声器单元: 1x 12" 铁氧体单元, 3"音圈	Transducers: 1x 12" driver with ferrite magnet and 3" voice coil
功放类型: D类, SMPS	Power amplifier type: Class D, SMPS
DSP: 48 kHz, 24-bit DSP, 可拓展动态范围, 处理延时:1.1 ms	DSP: 48 kHz, 24-bit DSP processor, processing latency: 1.1 ms
信号处理: 音箱DSP预设,延迟,EQ: HPF/LPF,参数EQ (Q, F, 增益),	Signal processing:Speaker presets: Delay, EQ: HPF/LPF,Parametric
RMS限制器,峰值限制器,反相,静音,输入增益	EQ (Q, F, Gain), RMS Limiter, Peak Limiter, Phase Invert, Mute, Input Gair
保护 :短路,热保护,过流保护	Protection: Short circuit, overheating, overheating
控制: 数字编码器按钮	Controls: Digital encoder with push button
指示灯: 电源指示,信号指示,限幅指示,保护指示	Indicators: Power on, signal in, limit, protect
信号输入/输出: Input signal: balanced XLR 3-pin female	Audio connectors: Input signal: balanced XLR 3-pin female
Link output: balanced XLR 3-pin male	Link output: balanced XLR 3-pin male
电源输入/输出: Neutrik PowerCON® (Max: 15 A)	Power connectors: Neutrik PowerCON (Max: 15 A)(Series can
(最多只能串联6只)(220 V: 6 pcs)	be at most 6 pcs)(220 V: 6 pcs)
吊挂/ 硬件: 2x 两点 SE 堆疊系统, M20支撑杆	Rigging / hardware: 2x two-point SE stacking system, M20
	distance pole thread
电源要求: 100-120 VAC or 220-240 VAC	Power requirements: 100–120 VAC or 220–240 VAC
箱体材料/喷漆: 15mm 精选多层板,黑色或白色聚脲漆	Cabinet: 15 mm plywood, black or white polyurea coating
尺寸 (W x H x D): 355 (385 堆叠连接栓) x 507 x 495 mm	Dimensions (W x H x D): 355 (385 with rigging) x 507 x 495 mm
重量: 23 kg 1.在自由场,使用12dB峰值粉噪信号测试,直接读取峰值数据。	$Weight: 23\ kg \\ {\it 1.Peak SPL from measurements with 12dB crest factor pink noise, whole space.}$

))) 结构图Specification







))) 产品附件Product Accessories



M-F3A UB U型托架



M-F3A BF 吊架



M-F3A FS BF 吊架



M-F3A SFi S12 地面堆叠架



GSP2342 B Gravity 支撑杆



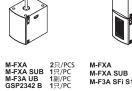
M-F3A FA34 次低全频连接 转换件



M-F3A FS BFX M-FXA FS和 M-FXA 的组合吊架

))) 应用方式Application Cases







M-F3A SFi S12 1副/PC

3只/PCS





M-F3A BF 1副/PC M-FXA 8只/PCS M-FXA SUB 6只/PCS



M-F3A FS BF/BFX 1副/PC M-F3A FA34 1副/PC M-FXA FS 2只/PCS M-FXA 6只/PCS

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