ANEST IWATA

Glossy Finish Automatic Gun

GFA SERIES

Premium Automatic Spray Gun

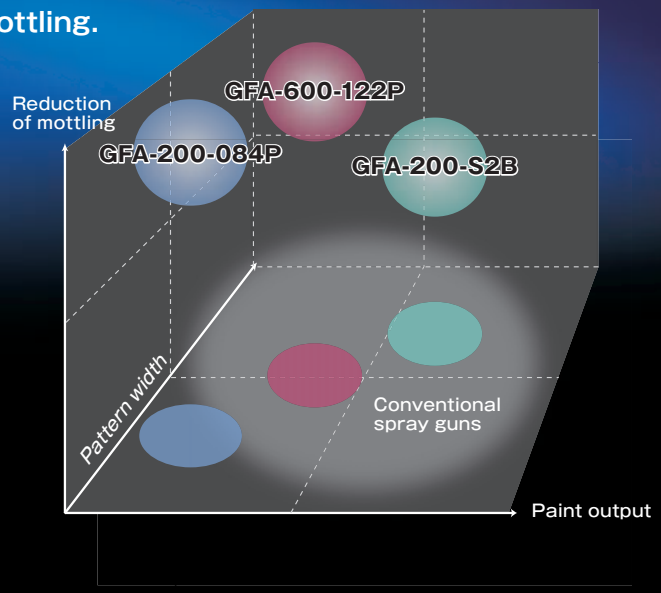
GFA SERIES

Gloss Finishing

Compared with conventional spray guns

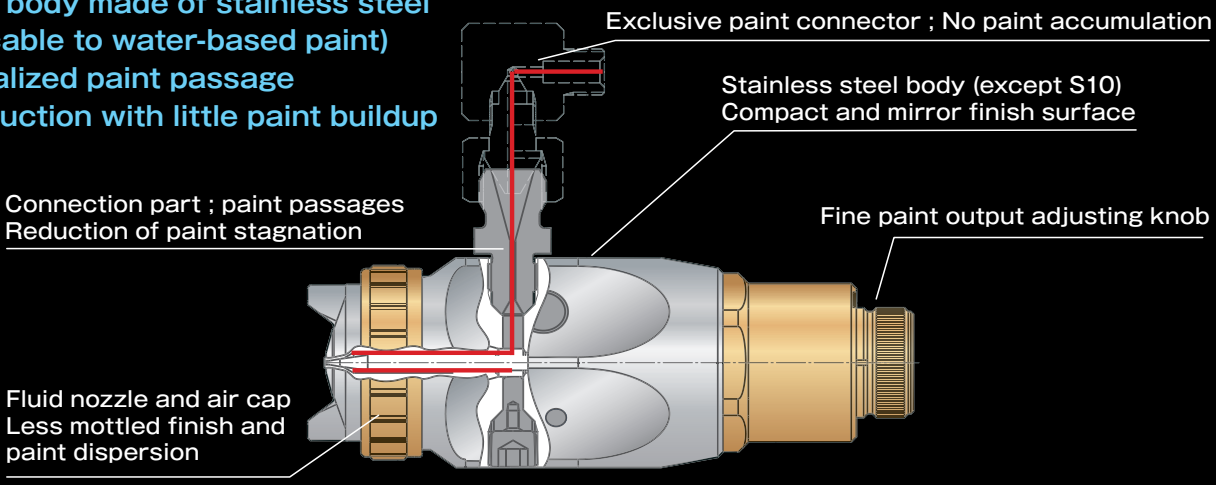
The GFA series specializes in reducing mottling.

Recently, for plastic workpieces, there has been a shift in trend toward brighter and higher gloss paints. These paints contain various solvents such as glass powders, evaporated metals, etc.
In addition, a thinner paint film results and less paint output is required, thereby creating a tendency for mottling on paint surfaces. Conventional guns have been evaluated as being good to use for general purposes and for the generation of fine particle sizes, but the problem is that mottling on paint surfaces is unavoidable.



Construction and Features

- High-density flat pattern
- Whole body made of stainless steel (applicable to water-based paint)
- Specialized paint passage construction with little paint buildup



For small paint output applications

GFA-200-084P

Application : Digital camera and cellular phone casings sprayed with robot or put through a spindle application

Lightweight GFA-200-084P Model

GFA-200-S10

Application : Multiple spray guns mounted on twin-spindle or 1 robot

For medium paint output applications

GFA-200-S2B

Application : Notebook computers, plastic parts for cars using masking jigs, small items put on net

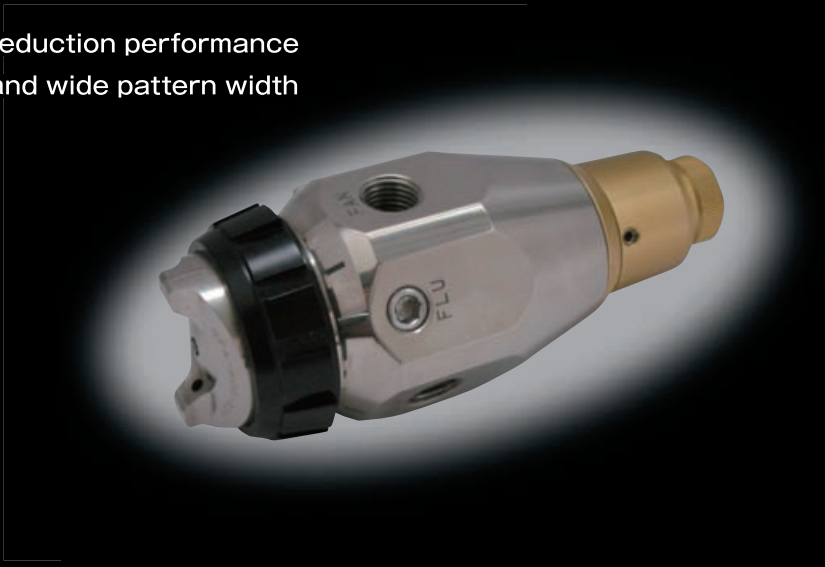
For midiam paint putput applications(High mottling reduction)

GFA-600-122P

Features

- ●Further improvement of mottling reduction performance
- ●Realizing increased paint out put and wide pattern width
- ●Reduction of paint consumption
- ●High atomization
- ●High corrosion-resistance
  (whole body is made of titanium)

Taret work pieces :
Examples
Bumper ,spoiler,rear garnish



■ Specifications

Type	Fluid nozzle (φmm)	Spray distance (mm)	Atomizing air pressure (MPa)	Pattern air pressure (MPa)	Air consumption (ℓ/min)	Paint output (mℓ/min)	Pattern width (mm)	Type of air cap	Mass (g)	Material
GFA-200-084P	0.8	150	0.11	0.12	190	30-100	90	C22	630	Stainless steel
GFA-200-S10	0.8	150	0.1	0.11	210	30-100	90	C22	325	Aluminum (almite treatment)
GFA-200-S2B	1.0	200	0.2	0.25	310	100-250	220	X6	630	Stainless steel
GFA-600-122P	1.2	200	0.2	0.4	600	100-200	160	G21	680	titanium

■ Accessory

Cover protector
for paint adjusting
device

Exclusive
paint connector

Exclusive
spanner
(optional)

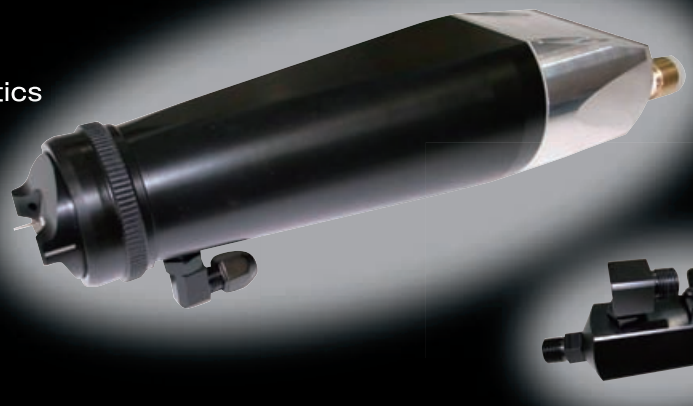
■ Special parts specifications

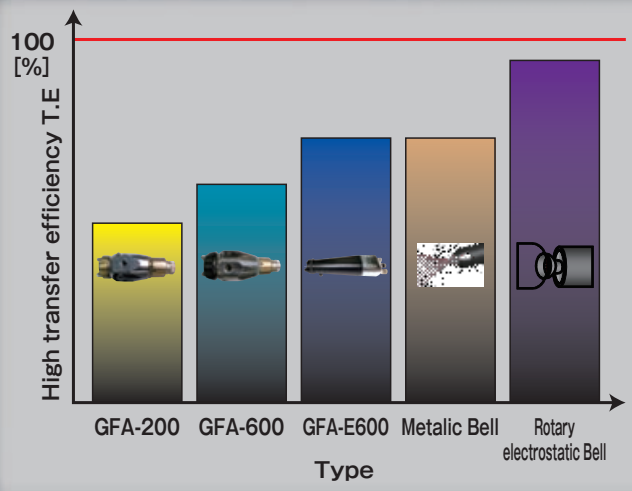
Type	Part name	Specifications	Purpose
GFA-200-X11	Nozzle piston set	Nozzle orifice Φ1.0mm	No paint accumulation
GFA-200-X18	Nozzle piston set	Needle valve and nozzle sheet is made of carbide	or the paint of abrasion property
GFA-200-X19	Air cap set	Small pattern	For spindle spray

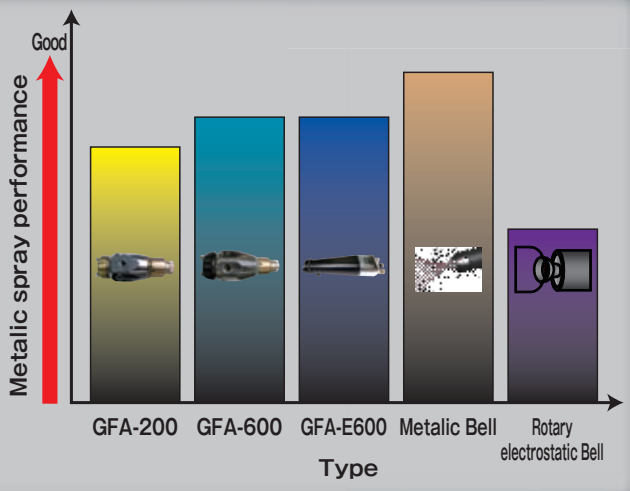
GFA-E600-134X

Features

- While keeping high design charactristics of GFA series, electrostatic effects. is created.
- Realizing high transfer efficiency
- Applicable water-based paint
- Applicable to mount with small size painting robot.

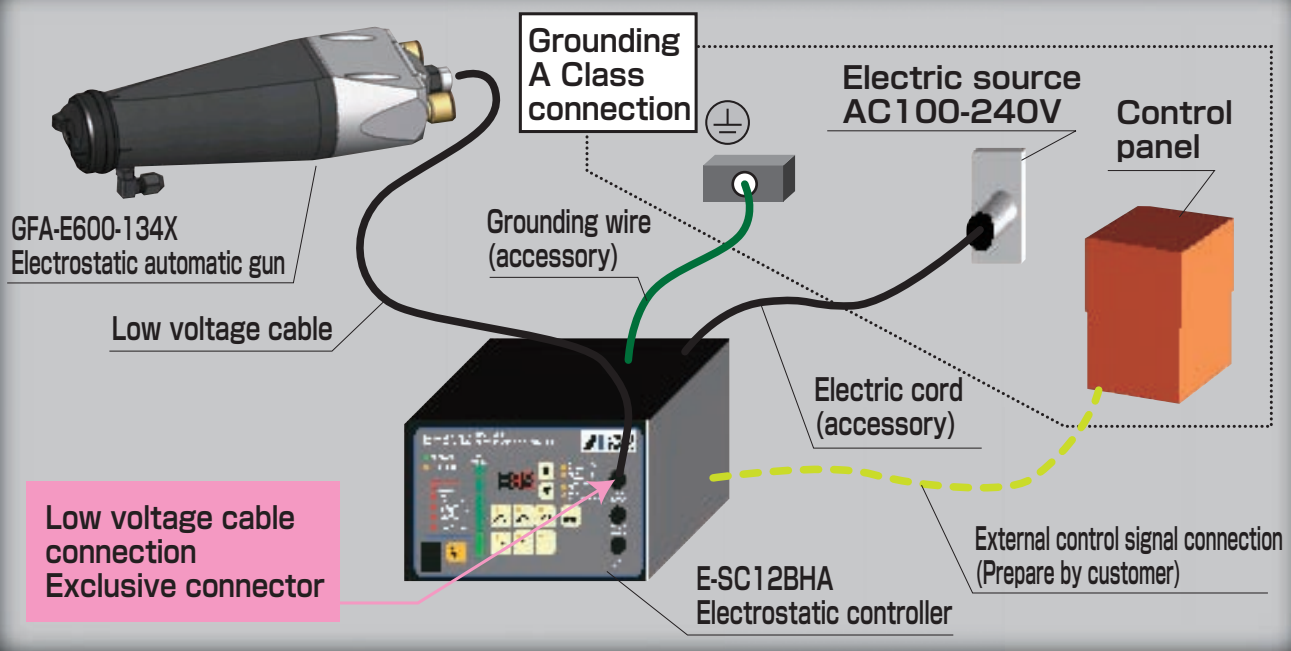






Specifications

Type	Fluid nozzle (φmm)	Spray distance (mm)	Atomizing air pressure (MPa)	Pattern air pressure (MPa)	Air consumption (ℓ/min)	Paint output (mℓ/min)	Pattern width (mm)	Type of air cap	Mass (g)	Material	Gun output voltage
GFA-E600-134X	1.3	200	0.2	0.37	560	100~200	150	GFA-E600 -H21	940	Resin (Body)	-60kV



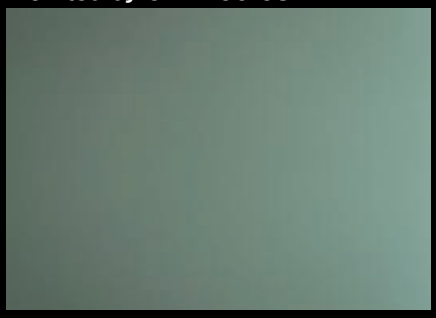
Mottling reduction performance has been realized.

To make thinner paint film with a high-gloss finish when a small paint output is required, conventional spray guns have created mottling and an inclined spray pattern.
A thorough pursuit has been undertaken to find the cause of mottling and all possible air flows have been analyzed. As a result, the cause of mottling has been eliminated.

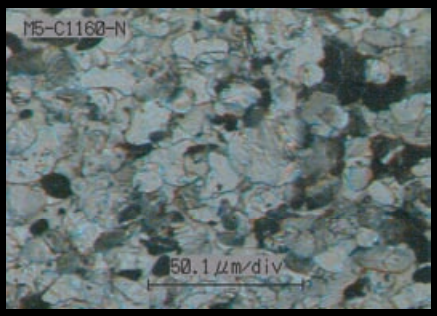
Compared with conventional spray guns

Painted by conventional spray gun

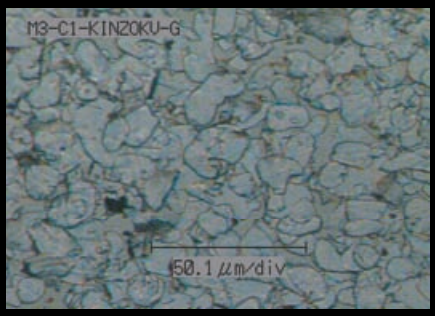
Painted by GFA-200-084P



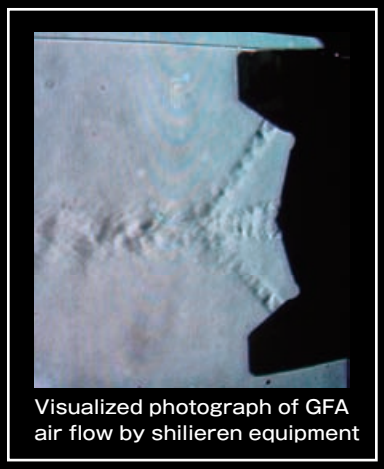
Enlarged microscopic image(2000 times)



Metal flakes are floating and coloring pigments are coagulated.



Metal flakes are distributed evenly without flake floating. and coloring pigments are distributed evenly.

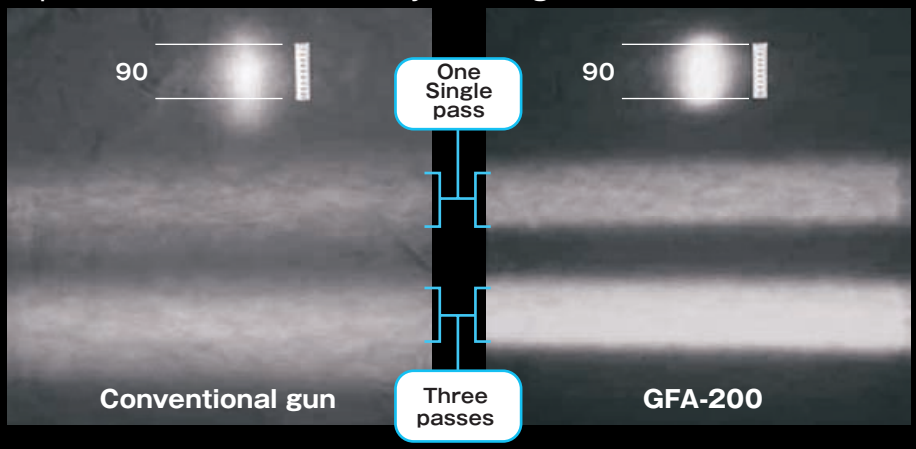


Visualized photograph of GFA air flow by shilieren equipment

Painting conditions
Paint : metal-tinged paint
Paint output : 70mℓ/min
Number of gun passes : 3times
Paint film thickness : 6μ

Reduction of paint consumption

Most customers using GFA-200 have attained an improved finish quality and reduced paint consumption by 10 to 50%. ※A reduction of paint consumption is attained by a lower level of mottling, which, in turn, reduces the required number of passes, rather than through an improved transfer efficiency of the gun.



Elliptic pattern. Paint mist is outside the pattern.

Fine particle size is seen in the pattern, but particles are distributed unevenly.

An increased no. of paint passes or atomizing air pressure to cover mottling paint surface.

Large amount of overmist ; High paint consumption

Pattern is nearly rectangular in shape and less paint mist is seen outside the pattern.

Less surface mottling

Even particle distribution in the pattern.

Creation of high-quality paint surface by low atomizing air pressure and fewer paint passes.

Low paint consumption ; Attainment of high quality paint film

Actual production line examples

①**Cellular phone body : Painted with metallic color clear paint**
Paint consumption saved : 15~22%

②**LCD TV frame : Painted with metallic paint**
Paint consumption saved : 25%

③**AV equipment components : Painted with metallic paint**
Paint consumption saved : 15~25%

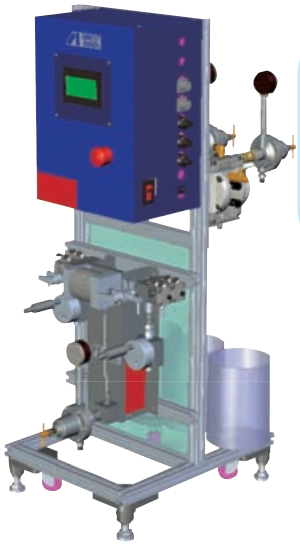
④**Plastic parts : painted with metallic paint**
Paint consumption saved : 15~45%

⑤**Car bumpers : Painted with metal tinged paint**
Manual gun line ▸▸▸ Automatic gun line

⑥**Automotive garnish : Painted with metallic and pearl paints**
Cycle time saved : 50%

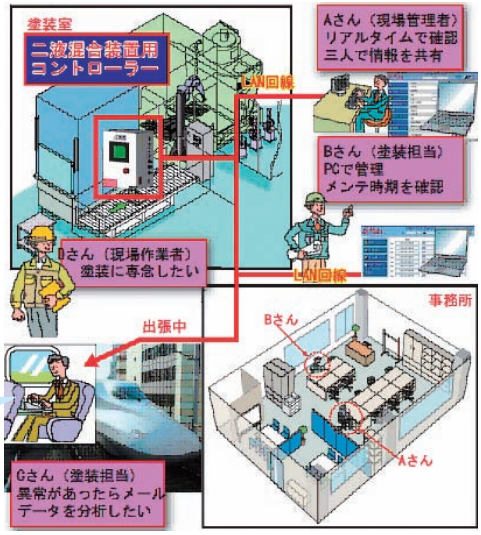
Specialist for supply pump system
Sylinder pump unit(CYP Series)

Achieving amazingly fast and precise with unique highly advantaged technologies
Paint coating robot system(APR series)



Essential product for two component paint coating
Two component mixing unit {I 4 Mixser series}

Web Manager
Achieving to watch job site from office by monitoring function



Safety precautions

For operation
1 Never use these spray guns for purposes other than coating.
2 Before use, be sure to carefully read the instruction manual for correct usage.
3 Never alter these products for any application. If done, it can cause poor performance or failure.

Others
1.Figures in this catalog are measured using our paints for testing purposes.
These figures will differ according to the kinds of paints used and the painting conditions.

ANEST IWATA
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ANEST IWATA

i4 Mixer

innovation(혁신)
intelligent(지능형)
interactive(대화형)
integrate(통합형)

다국어 지원
- 일본어· 영어
- 중국어· 한국어
- 유니버설 디자인

지능형
- 1 : 1 ~ 1 : 20
- 40 Recipes
- 30 Color Change 지원
- 3액형

대화형
- LAN에 의한 원격 조작
- 업로드、다운로드

모니터링
- 가사시간· 혼합비· 유량 관리
- 누설· 막힘 경고

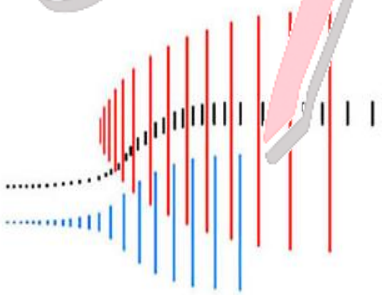
i⁴Mixer series

2액형-3액형 전자식 혼합 시스템

1.혼합 장치의 필요성

①2 액형 도료 사용시 문제점

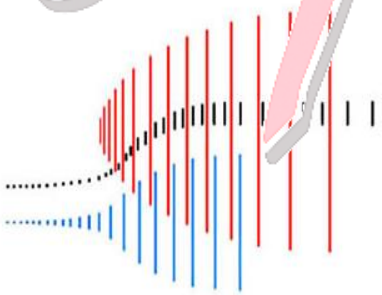
- 페인트, 시너 손실이 많다
- 혼합 작업이 복잡、경화제 관리
- 혼합 정도 관리
- 이상 발생시 원인 추구
- 유지 관리가 복잡



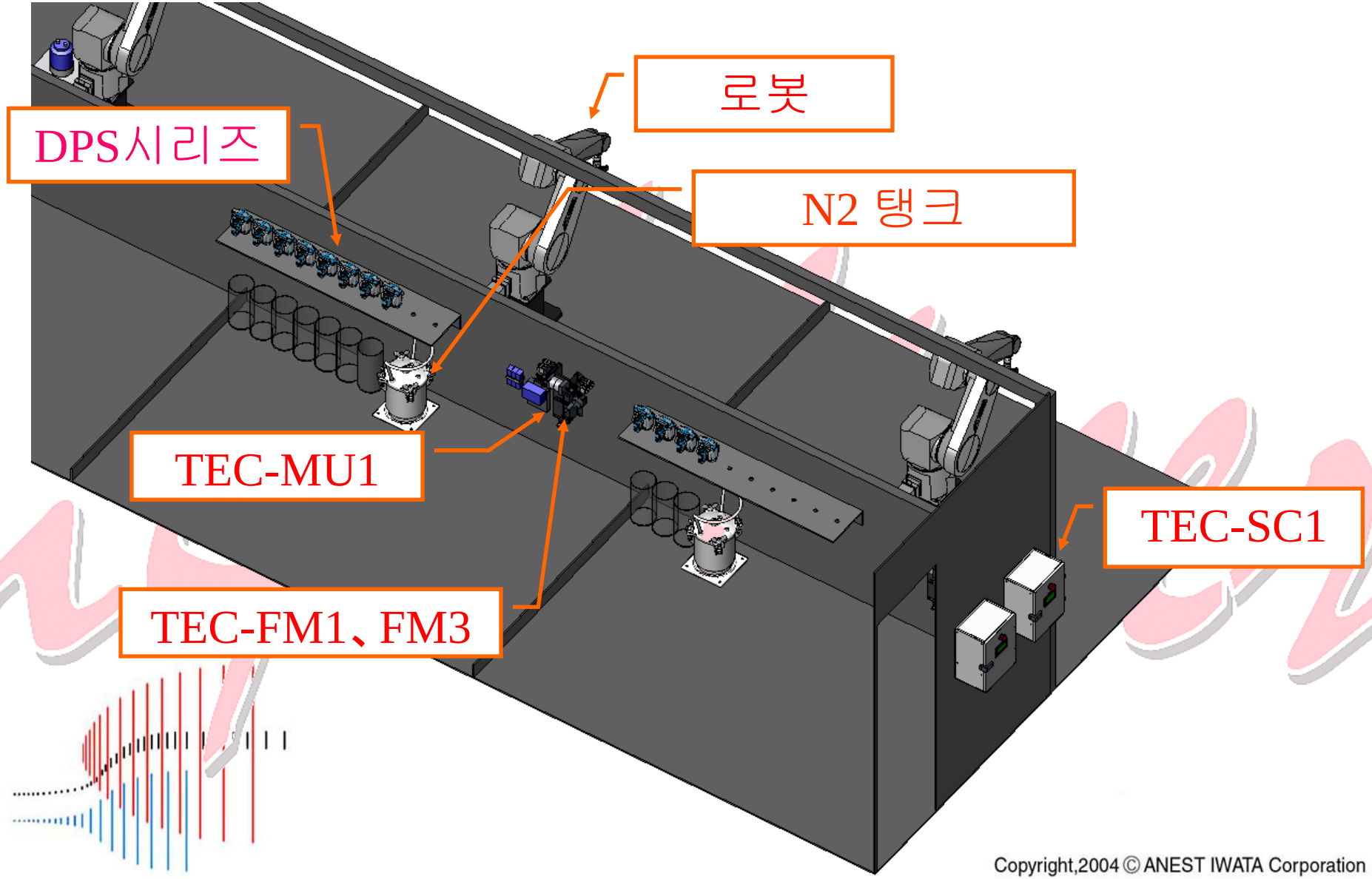
문제점 개선이 필요

②도입에 따른 개선 대책

- 페인트, 희석제 사용량 절감
- 혼합 작업 시간 단축、경화제의 안전 관리(N2)
- 정확한 계량(피드백 제어)
- 자동화를 통한 인건비 절감
- 이력 관리에 의한 원인 발견이 용이
- 유지 보수주기의 장기화



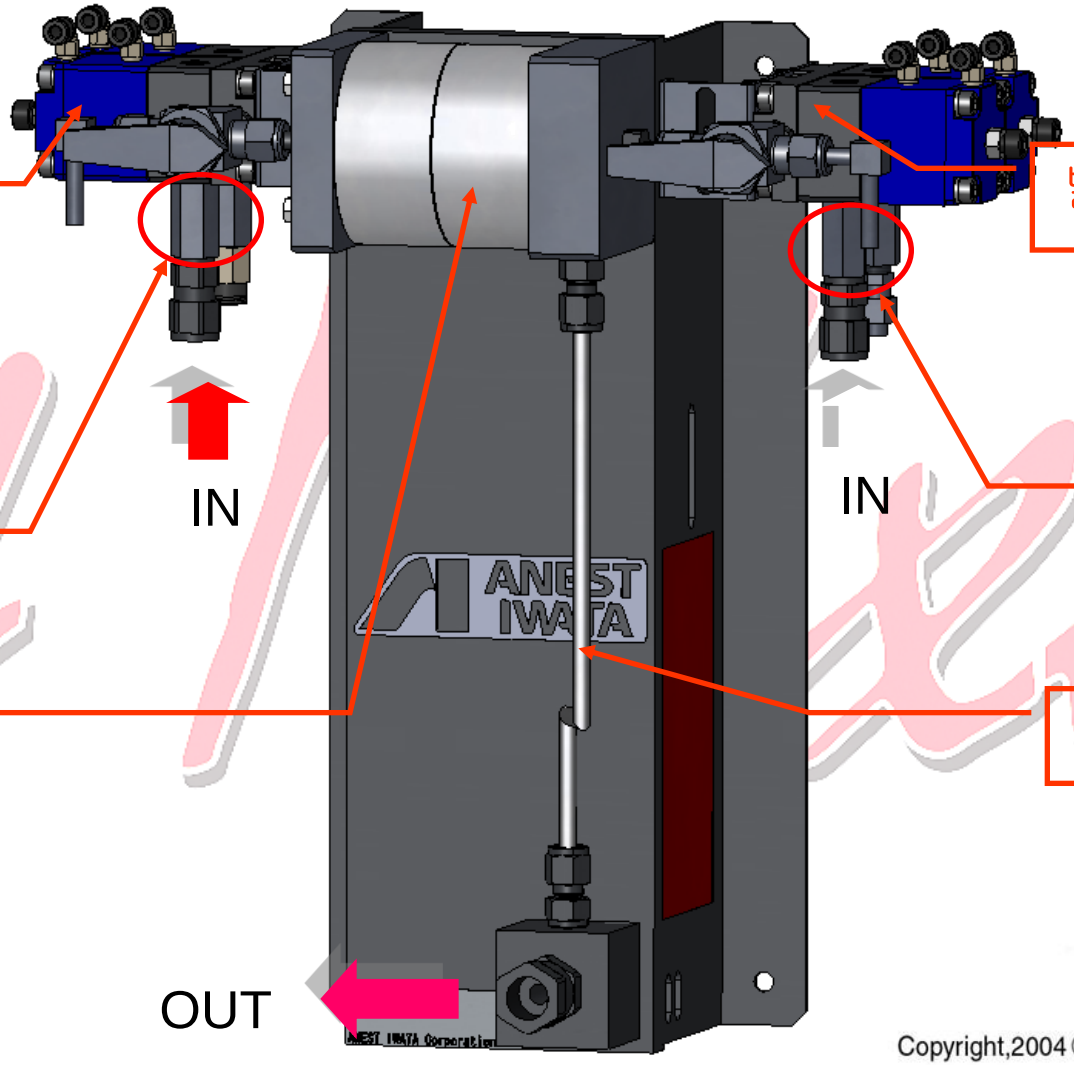
레이아웃 예



2. 기본 사양(i⁴Mixer)

①TEC-MU1 혼합 장치(Mixing unit)

A.외관



밸브(Base)

밸브(hardener)

체크 밸브

체크 밸브

프리 믹스

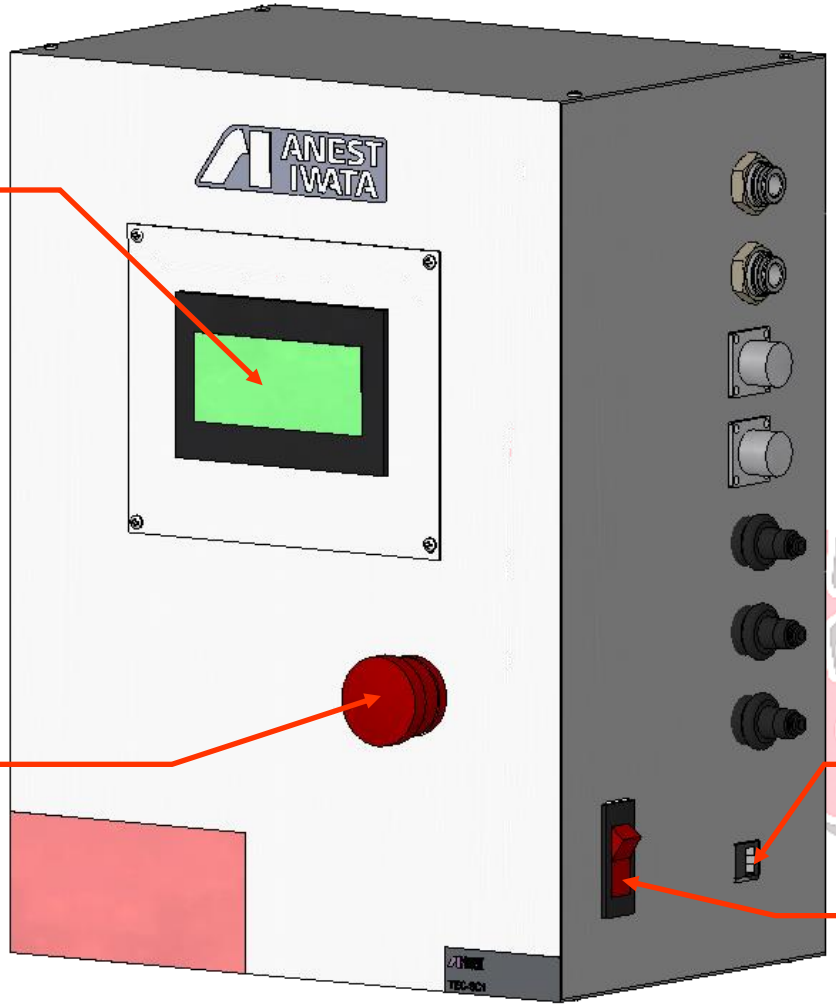
스태틱 믹서

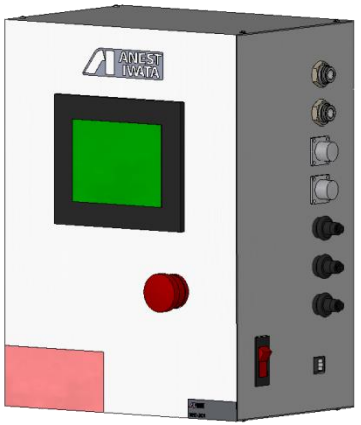
B.기본 사양

항목	TEC-MU1
치수 WxHxD (mm)	370x350x162
작동 온도 범위(℃)	-20～+50
주위 습도(%RH)	35～85
무게(kg)	7.5
에어 공급 압력(MPa)	0.5-0.7
최대 사용압력(MPa)	1.5
접액부 재질	SUS303、POM、PTFE、불소 고무
밸브 수량	4
응답 속도(밸브)(ms) ON/OFF	90以下
스태틱 믹서	12엘리먼트 x2

②TEC-SC1、TEC-SC2 컨트롤러

A.외관





디스플레이

비상 정지 스위치

고기능 모델
TEC-SC2

LAN커넥터

전원 스위치

B.기능

◘ 조작 기능

- ◆ 혼합、청소、색상 교체、충진
- ◆ 모니터링(운전 상태, 유량, 혼합비)

◘ 알람 기능

- ◆ 포트 라이프 알람
- ◆ 비율 오류
- ◆ 유량 오류
- ◆ 탱크 오류
- ◆ 누출、막힘 알람

◘ 모니터링

- ◆ 도료 사용량
- ◆ 탱크의 잔량
- ◆ 알람 기록

비율 오류

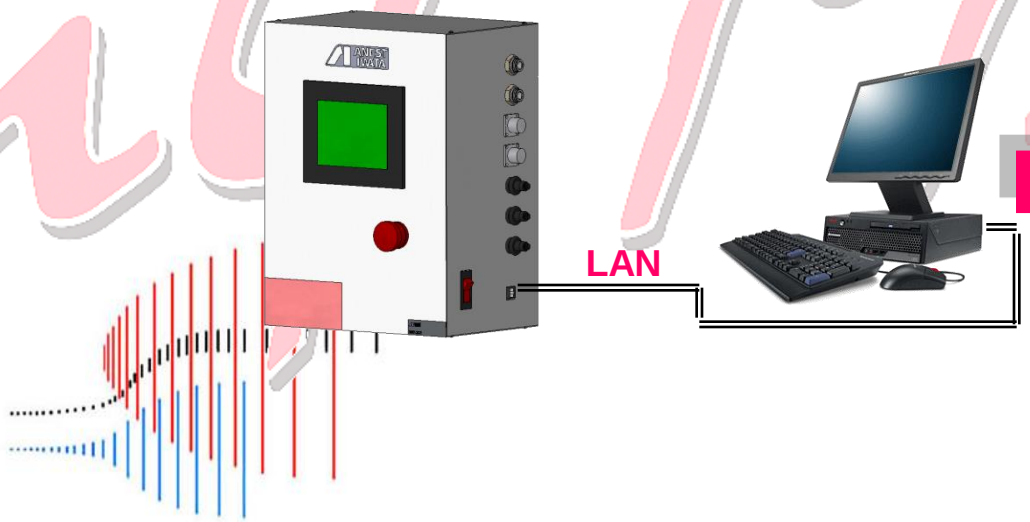
알람 기록(TEC-SC1)

◘ 외부 작업

- ◆ 혼합、청소、색상 교체、페인트 충진

◘ PC 모니터링

- ◆ 혼합비、유량,포트 라이프
- ◆ 알람 기록
- ◆ PC 로부터의 원격 조작
- ◆ 업로드, 다운로드



C.기본 사양

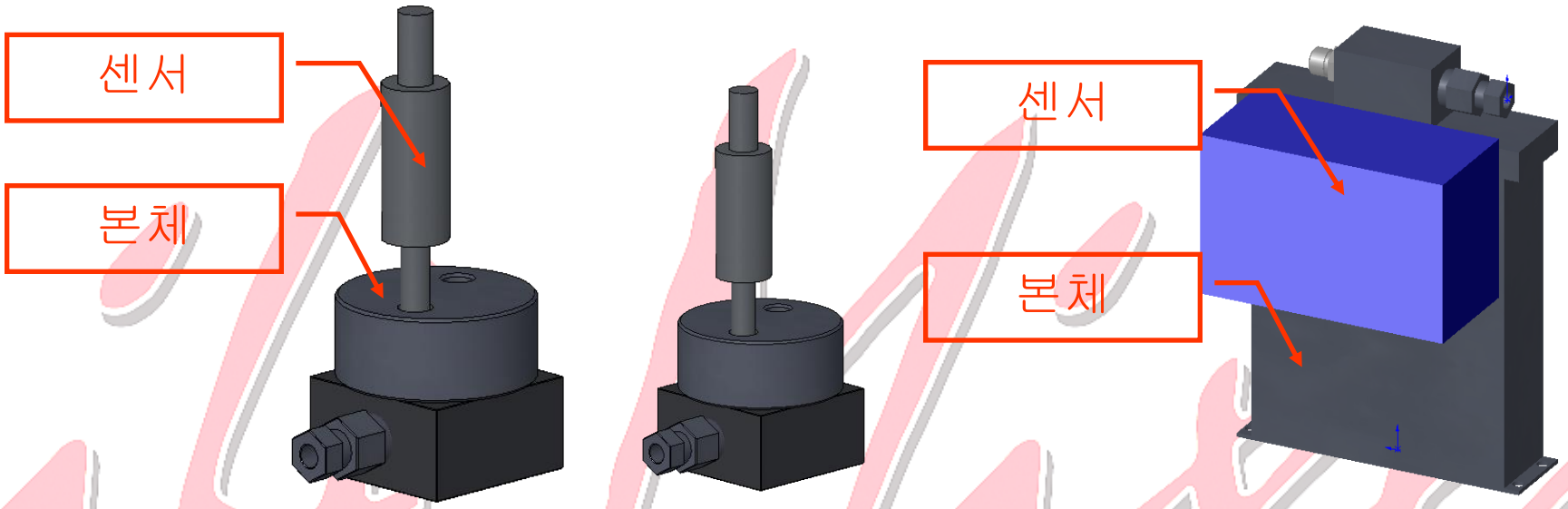
항목	사양		비고
	TEC-SC1	TEC-SC2	
➢사용 도료	2액성 폴리우레탄 도료	←	1K 지원
➢3K 지원	×	○	
➢혼합비 범위	2K: 1:1～20:1 3K: -	2K: ← 3K: 1:1:1～20:20:1	임의설정 (소수점 한자리)
➢비율 정확성(%)	±5이내	←	
➢에어 공급 압력(MPa)	0.4～0.7	←	
➢색체 변경 기능	4칼라(주제 2、경화제 2)	30칼라	사용 가능한 CCV 합계
➢외부 전원 공급(V)	AC100～240	←	Free 전원
➢언어	한글,일본어,중국어,영어	←	
➢화면	3.7 인치	5.7인치	
➢데이터 수	40패턴	←	
➢입력 / 출력	입력36 출력32	입력52 출력64	
➢소비 전력(W)	150	←	
➢작동 온도 범위(℃)	0～40	←	
➢주위 습도(%RH)	35～85	←	
➢네트워크	○	←	Ethernet(LAN)
➢치수 W×H×D	300x400x200	←	
➢무게(kg)	9	11	

②TEC-FM1、FM2、FM3　유량계

A.외관

기어 타입

코리 올리



TEC-FM1
표준

TEC-FM2
낮은 유량

TEC-FM3
초저 유량

B.기본 사양

항목	TEC-FM1	TEC-FM2	TEC-FM3
종류	기어 타입	기어 타입	코리 올리
외부 전원 공급(V)	DC7-30		DC24
소비 전력(W)	1以下		15以下
유량계 본체 치수 WxHxD (mm)	φ68xH29		145x60x188
작동 온도 범위(℃)	-20～+50		
주위 습도(%RH)	35～85		
무게(kg)	0.74	0.76	4
유량 범위(g/min)	100-2,000	50-1,000	20-1,000
최대 사용압력(MPa)	21		40
점도(cP)	10-20,000		
접액부 재질	SUS316(본체) SUS321(기어) WC(베어링) PTFE(O링)		SUS316 (블록) SUS890L (튜브)
센서	VIII-2S00/N	VIII-1S00/N	RHE-14
출력 방식	오픈 콜렉터		
접속 구경	Rc1/4	Rc1/4	Rc1/4
Barrier(옵션)	○	○	×

i4 Mixer

3. 시스템 구성 예 i⁴Mixer

①1 color

제어 패널

공기IN

TEC-SC1

스프레이 건

주제

TEC-MU1

TEC-FM1

TEC-FM1

DPS시리즈

경화제

혼합액

세척 희석제

N2 탱크

ANEST IWATA

②색상 교체 사양(주제2色、경화제2色)

LAN

공기IN

CCV

CCV

주제

DPS시리즈

스프레이 건

E-M15B

E-Bell

CFA

경화제

혼합액

세척 희석제

N2 탱크

i4 Mixer

ANEST IWATA

③3K

LAN

공기IN

주제

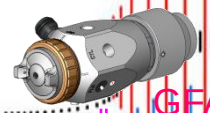
희석제

DPS시리즈

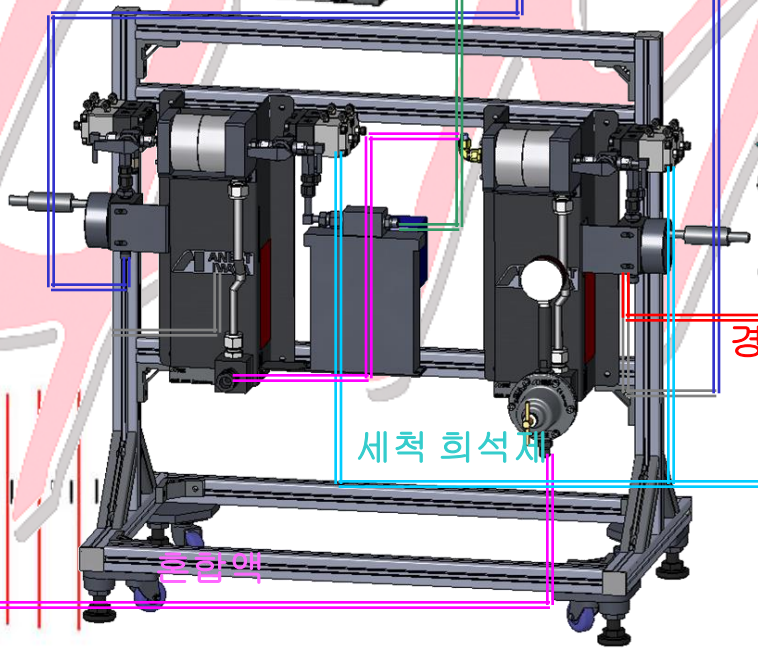
스프레이 건

E-M15B

E-Bell



GFA



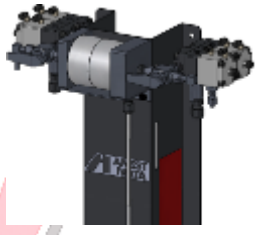
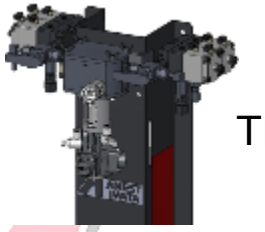
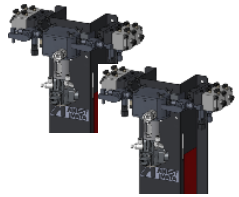
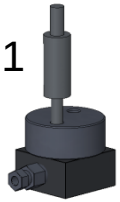
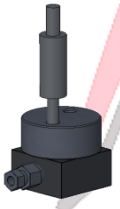
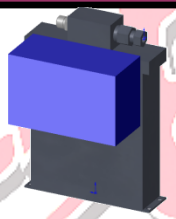
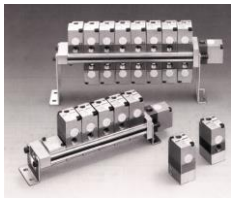
경화제

세척 희석제

혼합액

N2 탱크

4. 라인업 i⁴Mixer

	용제 용 2K		waterborne 수성		용제 용 3K
	기본 모델	고기능 모델	기본 모델	고기능 모델	고기능 모델
Mixing Unit	 TEC-MU1		 TEC-MU1		
Controller	TEC-SC1 	TEC-SC2 	TEC-SC1 	TEC-SC2 	TEC-SC2 
Flowmeter	TEC-FM1 	TEC-FM2 	TEC-FM3 		 저가형 코리올리
Option	 TEC-LAN1		 컬러 체인지 밸브		

유니버설 디자인

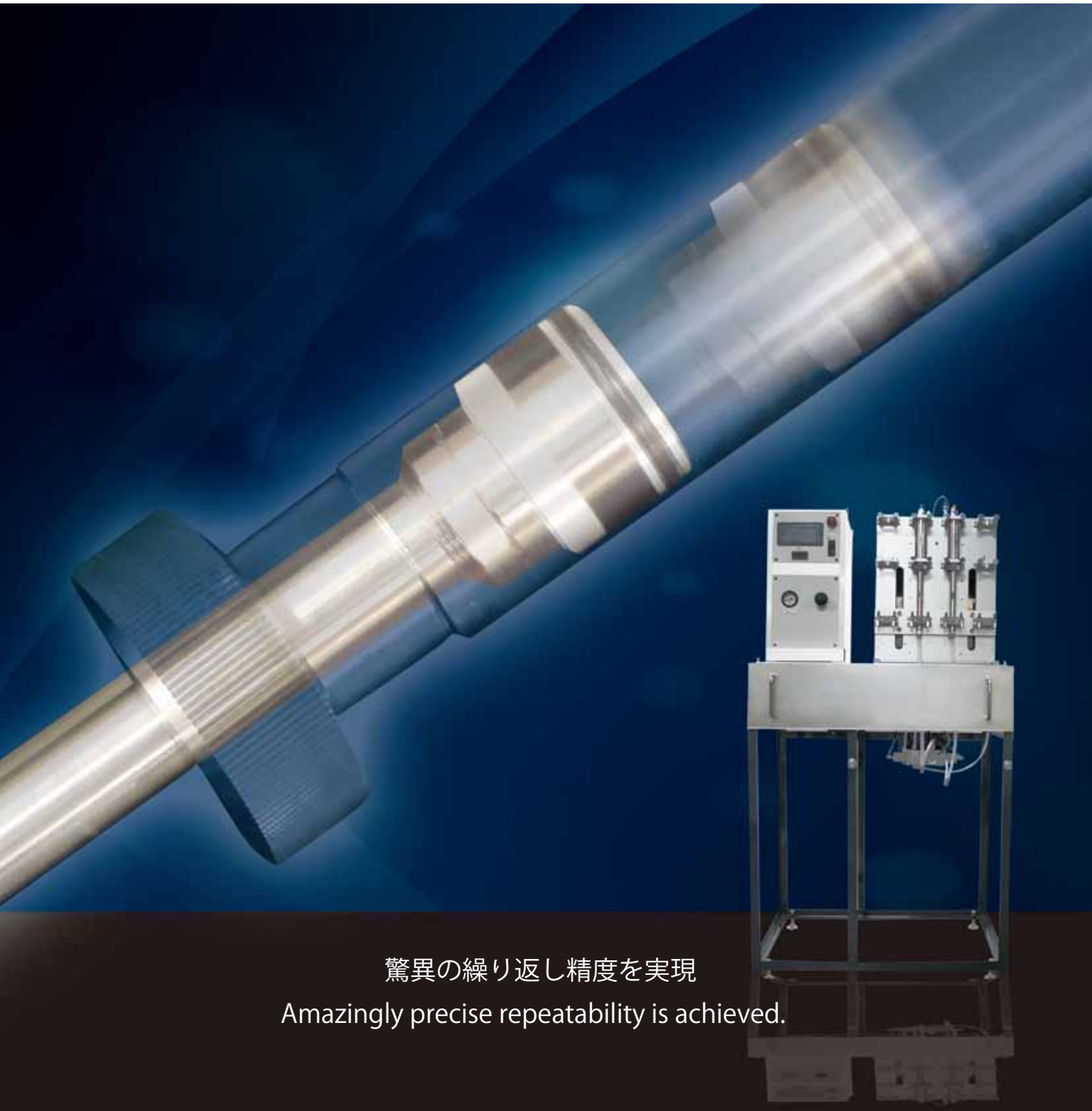
ANEST IWATA

アジャストメントフリー供給システム

シリンダポンプユニット

「CYP シリーズ」

Cylinder Pump unit CYP series



驚異の繰り返し精度を実現

Amazingly precise repeatability is achieved.

CYPシリーズは繰返精度±0.1%以下の精密な定量塗料供給を実現しました。また、一般塗料の液温粘度変化や時間増粘変化、反応型塗料の経時粘度変化、水性塗料のチクソ粘度変化等の影響を受ける事がありません。さらにはギアポンプに見られるUV塗料使用時の固着等がなく、殆どの塗料に対応した定量安定供給が可能となりました。CYPシリーズは、作業者を吐出量調整の多大な煩わしさから開放します。

CYP series cylinder pumps are now able to supply precise fixed q uantity of paint under repeatability of ±0.1%. They are not influenced by viscosity changes caused by liquid te mperature change or elapsed time of general paints, also not influencedby viscosity change caused by elapsed time of reactive paints, also not influenced by thixotropic viscosity change of water-based paints. Further, there is nos eizure of gear pumps,which often occurs when using UV paints. The pumpscan supply a fixed quantity of almost all paints. CYP series can remove the burden of paint output adjustment from painters.

特　長　Features

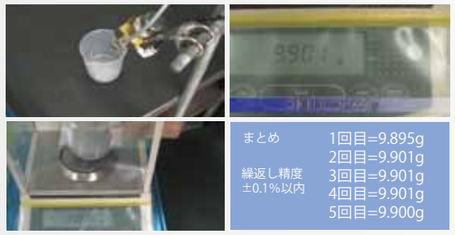
タッチ入力でカンタン吐出量変更。　Easy adjustment of paint output by touch panel.

STEP1 ▶
タッチして
Touc h

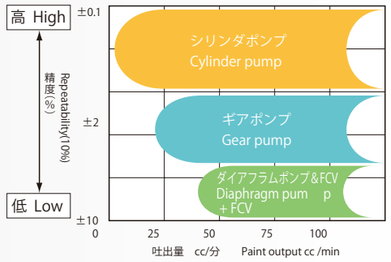
STEP2 ▶
希望吐出量を入力
Input required
paint output

STEP 3 ▶
希望吐出量に
変更されました。
Changed to
required paint
output .

±0.1% の驚異の繰返精度　Amazingly precise repeatability within ±0.1%

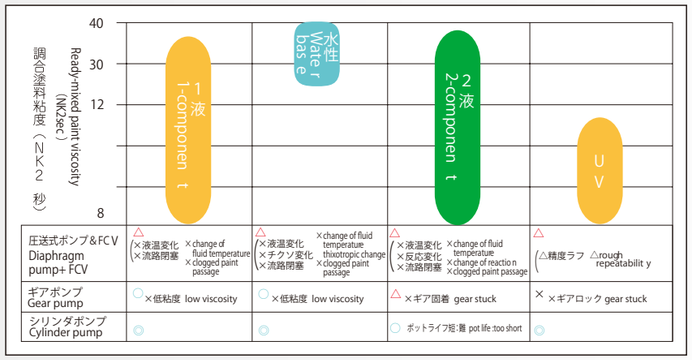


60cc/minの吐出量に調整　Adjusted to 60 cc/min. paint output
（サイクルタイムは10秒に設定。連続５回繰返し検証を実施）
(Set cycle time at 10 seconds and measurements conducted five ti mes (consecutively)



シリンダポンプは様々な塗料供給方式よりも繰返精度の高い塗料供給が可能です。
Can supply paint with more precise repeatability than any other kinds of paint supply systems.

塗料特性、塗料粘度、流路詰まりなどによる条件変化
Conditions change by paint property, paint viscosity and clogg ing of paint passage



シリンダポンプは温度変化、チクソ変化、粘度変化、流路閉鎖等に左右される事無く、常に一定した塗料供給を行なう事が可能です。
Can deliver a constant, stable paint supply unaffected by temperature , viscosity, thixotropy or clogging of paint passages .

●対応可能粘度は配管構成、ガン数によって異なります。
Available viscosity will be changed by plumbing layout and spray gun quantity .

●35秒/ＮＫ2（岩田粘度カップ）までの幅広い塗料粘度に対応
Can deal with a wide range of paint viscosity up to 35 second (NK-2 iwata viscosity meter) viscosity.

圧力コントローラで初期ドバ無　No initial spit by pressure controller

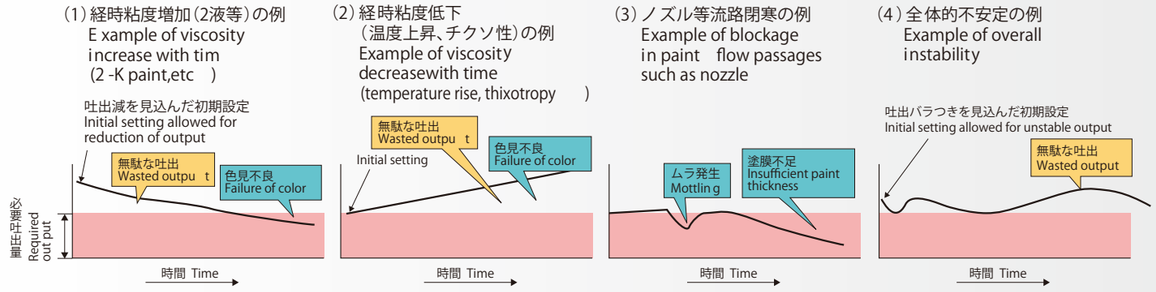
圧力フィードバックのない場合
In case of no pressure feedback

圧力フィードバックのある場合
In case of pressure feedback

常用吐出時の圧力を記憶し、初期充填時毎の高圧充填圧力を自動調整します。
その事により初期充填時の「捨て吹き作業」をする必要がなくなります。
Memorizes regular normal paint discharge pressure and automatically adjusts high filling pressure at each initial filling, resultingin no need of operating "initial spit)" at each initial filling.

安定塗料供給による膜厚安定化　Stable paint film thickness with stable paint sup ply

膜厚の安定化により塗料使用量削減（多めの吐出量調整不要）と歩留率の向上が期待できます。
Stable paint film thickness reduces paint consumption and improves yield rate.



仕　様　Specifications

コントローラ
Controller

CYP—C 1

形　式　Type	CYP-C1
データ入力方式　Data input system	タッチパネル　Touch-panel
画面表示　Screen display	幅 100 × 高 40mm　モニター　バックライト 3 色付き液晶画面 W100mm x H 40mm monitor, liquid crystal screen with 3-color backlighting
自動モード　Automatic mode	外部指令による自動吐出＆自動充填 Automatic discharge and automatic filling by external command
手動モード　Manual mode	充填動作、洗浄動作、JOG（寸動）動作、バルブ操作 Filling, flushing, JOG (inching), valve operation
コントロール機能　Control function	圧力調整、シリンダ選択、ピストン動作条件設定、カウンタ 吐出吸引速度調整、吐出吸引加減速、設定権限、終了遅延　他 Pressure adjustment, cylinder selection, setting conditon of piston operation adjustment for counter fill and discharge speed .
エアー出力　Air output	供給バルブ側：適用シリンダ 4、フラッシュ 1、エア 1、 1 次 塗料 1　ガン側：ガン動作 Air supply valve side: applicable cylinder 4, flushing 1, air 1,primary side paint 1gun side: gun operation
アラーム表示　Alarm display	11　種類　11 kinds
外部信号入出力 External signal input and output	入力：16　種類（フォトカプラー入力）Input:16 kinds (input by photo coupler) 出力：16　種類（オープンコレクタ出力、リレー出力）output:16 kinds (output by open collector, relay)
安全機能　Safety function	サーボアンプ負荷検出によるモータの停止　Motor stop by detecting servo motor load
電　源　Operating electric source	AC 200V±10%単相　、容量 1 KVA　AC200V ±10% single phase, capacity 1KVA
接　地　Grounding	D 種接地（100Ω以下 ）　D class (under 100Ω)
使用温度範囲　Working temperature range	0～40℃　結露無き事　0 ～ 40℃　non-condensing
供 給 空 気　Air supply	清浄、乾燥　0.49Mp a 以上、10NL ／分以上、 clean, dry over 0.48Mpa and over 10NL/min
筐体寸法　Dimensions	幅 2 50 × 高 500×　奥行 300mm　W:250mm x H500mm x D300mm
質　量　Mass	約 8 kg　about 8kg
塗　色　Color	ライトグレーレザートーン　light gray leather tone

駆動部
Driving sectio n

CYP-A4

	1 ガン用　For one-gun	2 ガン用　For two-guns
形　式　Type	CYP-A 1	CYP-A 4
シリンダ搭載数　The number of cylinders to be mounted	1	2～4
駆動方式　Type of driving system	AC サーボモータ（1 モータ最大 4 シ リンダ駆動方式） AC servo motor(one motor drives max. 4 cylinders)	
有効ストローク　Effective stroke	120m m	
駆動形式　Type of driving	ボールネジ送り　Feeding by ball screw	
吐出速度　Output speed	最大 86 0 ㎖ /min（動作速 度 17.4mm/sec）　Max.860ml/min(operation speed 17.4mm/sec)	
筐体寸法　Dimensions	幅 4 00 × 高 496×　奥行 335mm　W 400 x H 496 x D 335	
質　量　Mass	約 1 5kg　Approx. 15k　g	
塗　色　Color	ライトグレーレザートーン　light gray leather tone	
接　地　Grounding	D 種接地（100Ω以下）　D class(under 100 Ω　)	

全 体 構 成　Overal composition

セット図
set image

	構成品名　Description	形　式　Type	内　容　Contents
標準 Standard	駆動部　Driving section	CYP-A1	ブラケット 1 式 付属　1 ガン用 one set of brackets added as accessory for one gun use
		CYP-A4	ブラケット 4 式 付属　2〜4 ガン用 4 sets of bracket added as accessory for 2 〜 4 guns use
	シリンダピストン ASS Y Cylinder pistion ASSY	CYP-P 1	シリンダとピストンがペア、使用ガン数に応じて準備 one set of cylinder and piston, prepare depending on necessary number of guns
	制御盤　Control panel	CYP-C1	1 種類のみで 1〜4 ガ ン対応　applicable from 1 to 4 guns
	架　台　Bas e	CYP-T 1	1 ガン搭載用　for 1 gun to be mounted
		CYP-T 2	2 ガン搭載用　for 2 guns to be mounted
		CYP-T 4	4 ガン搭載用　for 4 guns to be mounted
	遠隔操作スイッチボックス Remote control swtich	CYP-S B	初期充填、洗浄、吐出、原点移動のスイッチ搭載 initial filling,flushing,output,switch for original point movement
オプション Option	1 ガン循環　1 gun circulation	CYP-R 1	沈降性塗料時ガン元から循環時 circulation from gun inlet with sedimentation property paints
	任意 2 ガ ン使用　any 2 guns are used	CYP-R 2	2 ガン搭載時の 1 ガン使用時 1 gun is used when 2 guns are mounted
	任意 4 ガ ン使用　any 4 guns are used	CYP-R 4	4 ガン搭載時の任意ガン使用時 any gun can be used when 4 guns are mounted
	ロボット連結ケーブル Robot connection cable	CYP-WR	10 m 仕様　10m cable
	2 色手動切替バルブ Manual changeover valve for 2 colors	CYP-P C	2 色使用時の手動切り替えバルブ Manual changeover valve when 2 colors in use

⚠ 安全上のご注意　Safety precautions

■ご使用に際して　Pay attention to the following:

1. 本 カタログに記載されている商品は、①食品・薬などの経口製品の製造用途、②商品の内部腐食が人や動植物に障害を与える用途でのご使用はおやめください。
2. ご使用の前に取扱説明書をよくお読みの上、正しくお使いください。
3. 商 品の改造はしないでください。十分な性能が発揮できないばかりか、故障の原因になります。

1. Do not use the products shown in this catalog for the following purposes:
   ①manufacturing process of orally-administered products such as food and medicine
   ②application where internal corrosion of products may cause da mage to humans and animals
2. Before operation, carefully read each instruction manual and use it correctly.
3. Do not alter the products. Alteration will cause inferior performance and failure.

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従って、日本国内で購入し海外へ輸出する場合、輸出先各国の国内法規・安全基準に合致していることを確認の上、輸出してください。
●本カタログに記載の仕様は商品改良のため、予告なく変更することがあります。
●仕様変更などにより、写真や内容が一部商品と異なる場合があります。

About the use of paint pressure tanks overseas
Codes and standards for pressure vessels vary from country to country.
Please contact us to see if our paint pressure tanks apply to your country specifications for pressure vessels.

Models, specifications and photos are subject to change without notice.

この印刷物には適切な森林保護を目的とした「FSC認証」による用紙を使用しています。また、主に大豆油を使用した植物性Non-Vocタイプのインクを使用し水質汚染の原因となる有害な廃液が発生しない「水なし印刷」を採用しました。

This catalog uses paper certified by the FSC to protect forested areas and also adopts the "printing without water" system, which uses vegetable ink mainly made of soy bean oil that does not generate poisonous waste liquid which contaminates water.

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ANEST IWATA

塗装ロボットシステム APRシリーズ

Paint Coating Robot System APR series

独自のハイテクノロジーで
驚異の高速・高精度を実現

Anest Iwata has used unique highly advanced technologies to develop amazingly fast and precise coating robots.

APR SERIES

PAINT COATING ROBOT SYSTEM

驚異の高速性・高精度・高耐久性が新たな塗装システムを生み出す。

Robots with amazing high speed, high precision and high durability can develop absolutely new paint coating systems.

高速性 High speed

直線最大速度は1.8m/sec～2.5m/sec。1～6軸までの各軸速度がクラス最速。非塗装時の動作スピードを極限まで上げ、生産性向上に寄与。

Maximum linear speed: 1.8m/sec~2.5m/sec
Each axis from No.1 to 6 has the fastest speed in its class
Speeding the motion up to the limit at non-painting time can contribute to productivity.

高耐久性 High durability

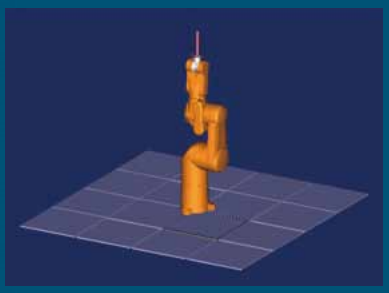
MTBF（平均故障間隔）60000時間以上（365日/年、24時間稼動で6年8ヶ月　）。経年的な機能低下がほとんど無く、修繕等に要する維持費を大幅削減します。

MTBF (mean time between failures): More than 60000 hours (6 years and 8 months at a 24 -hour operation through a year)
A minimal effect on aged deterioration in performance and deep cuts in maintenance costs

高精度 High precision

位置繰り返し精度は±0.03mm～0.05mmとケタ違い。キーシートや車載スイッチなど精度を要する塗装で威力を発揮します。

Position repeatability: ±0.03 ~ 0.05mm as order-of magnitude high precision can demonstrate outstanding performance for key-seats, car-mounted switches, etc.



自由な設置レイアウト Free installation layout

全方位型動作範囲の為、狭い設置スペースでも天吊や壁掛設置する事でスペースを有効活用。必要最低限のブース幅にレイアウトできる為、ワンランク下のブースサイズを選択。ブース空調に費やすイニシャルコスト、ランニングコストを削減します。

Thanks to the omnidirectional type motion range of the robot, it can maximize even in confined installation space by means of mounting the robot on ceiling and wall. Also, possibility to layout the robot in a spray booth with minimal width can select next smaller-sized booth by which initial setup charges and running costs for air conditioning can be reduced.

本体鍛造アルミによる超軽量化 Significant reduction in weight owing to the cast aluminum of the main body

中大形機種でも機体重量は260kg以下。天吊や壁掛け設置、ロボットの移動装置設計が容易になり、一次側電気容量もクラス最小。省エネにも貢献します。

The bodyworks of even large/medium-sized models are 260kg in weight. The robots can be installed on ceiling and wall, by which the unit traveling the robot can be designed easily. The primary side power of the robot is the smallest capacity in its class, contributing energy saving.

よりクリーンな機体 More clean body

ロボット本体はクリーン度クラス100に適合。塗装ロボットとしてはこれまでに類を見ないクリーン度を実現。

The robot body conforms to Class 100 as a standard of cleanliness, realizing cleanliness as the only painting robot of its kind.

リモートメンテナンス機能 Remote maintenance function

インターネットを経由してお客様のロボットの稼働状況(各種データ)を遠隔で確認・診断が可能。遠隔での保守作業および適格な復旧提案ができます。

Operating status (various data) of customers' robots can be checked and diagnosed by remote control through the internet, by which maintenance works and accurate proposals of recoveries can be carried out from remote sites.

保証期間の延長 Extension of warranty period

標準の保証期間は1年間。これに加え2年、3年の保証期間延長が可能です(オプション)。

Regular warranty period is 1 year. Extension of the warranty period to 2 or 3 years is possible (option).

3DCADティーチングソフト Teaching software on 3-dimentional CAD

APRシリーズ専用の3DCADティーチングソフトを開発中。お客様の設置方法に合わせたカスタマイズも可能です。

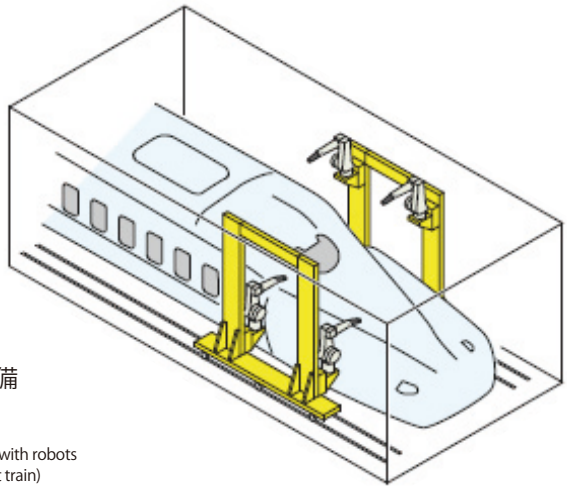
The teaching software on 3-D CAD is under development. Customizable for adapting to the installation configuration of customers

CE、ATEX（欧州防爆規格）をはじめFM規格も取得

The robots have attained the CE, ATEX directive (European explosion-proof standard) as well as US FM (Factory Mutual) standard.

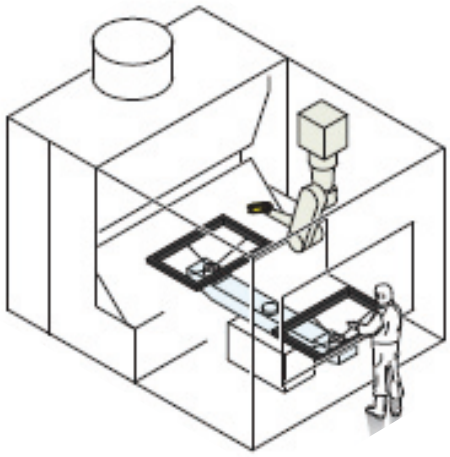
SYSTEM EXAMPLE

システム事例
Example of paint coating system



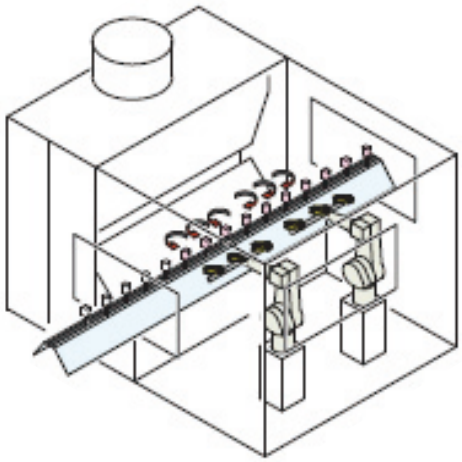
新幹線塗装設備
（APR-160L）

Paint coating system with robots
for Shinkansen (bullet train)



大形TV枠塗装設備
（APR-130XLEX）

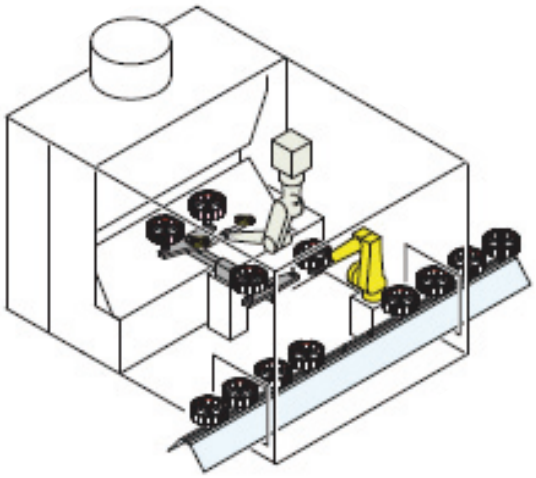
Painting system with robot
for large-sized TV frames



ロボット追従式
スピンドル塗装設備
（APR-90L）

Spindle type paint coating system
with robot follow-up type

Motion range

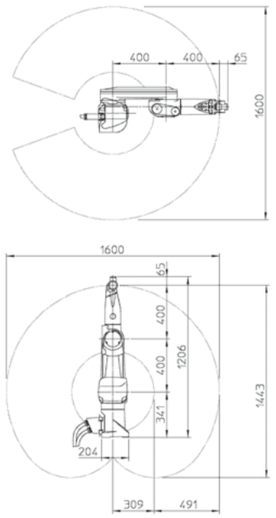


ツインスピン塗装設備
（APR-90 ）

Twin spindle type paint coating system
with robot

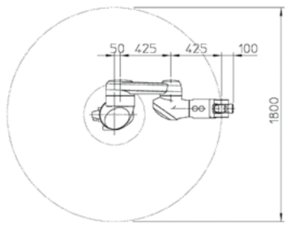
動作範囲（単位：mm） Motion range

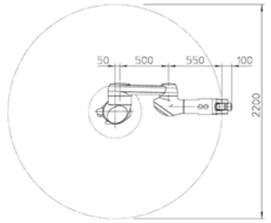
超小形タイプ Super-compact type

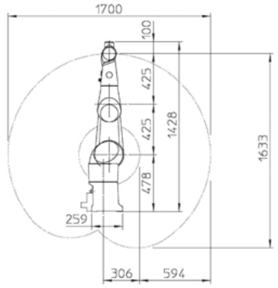


APR-60LEX

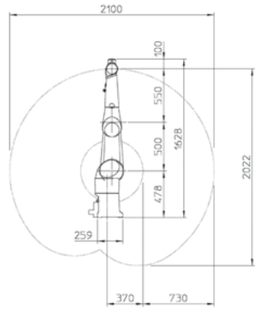
小形タイプ Compact type



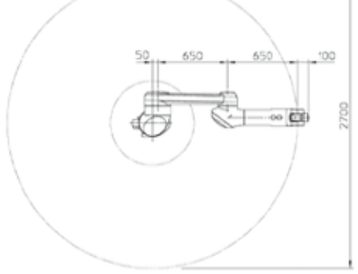


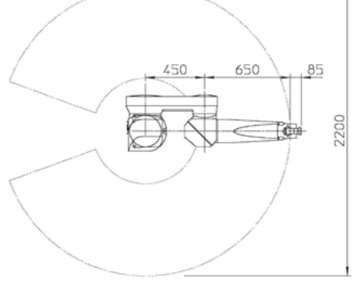


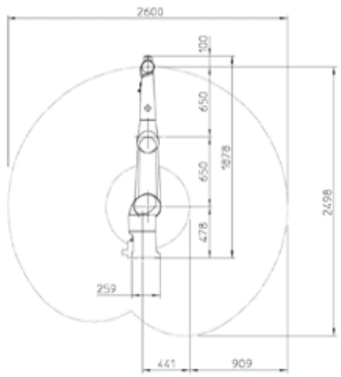
APR-90



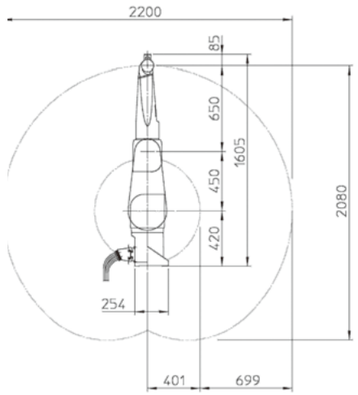
APR-90L





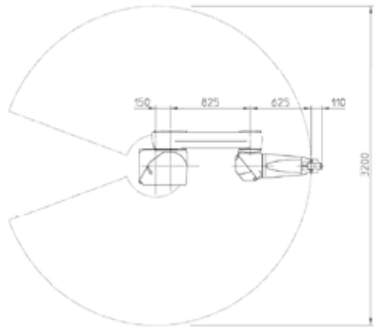


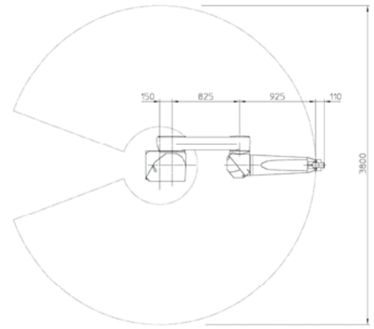
APR-90XL

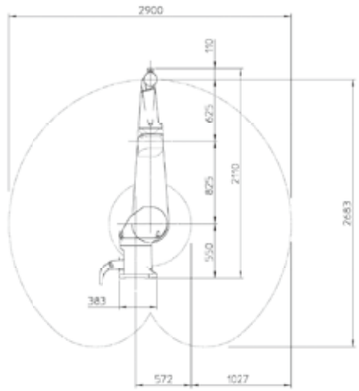


APR-90LEX

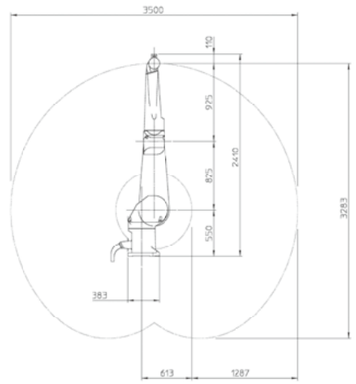
中形タイプ Medium-sized type





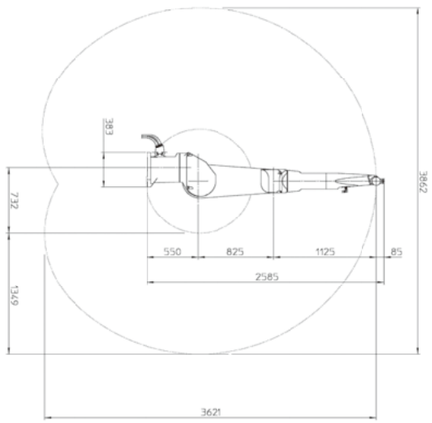


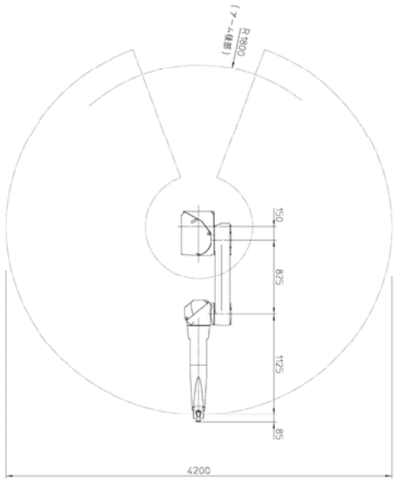
APR-160



APR-160L

大形タイプ Large-sized type





APR-130XLEX

仕様 Specifications

Paint Coating Robot System **APR** series

	区分 classification	項目 items	仕様 specifications								備考 Remarks
機体仕様 Main body specifications	機種 ype	型式 model ＊製造型式 serial model	APR-60LEX ＊RXPaint60L	APR-90 ＊TXPaint90	APR-90L ＊TXPaint90L	APR-90XL ＊TXPaintXL	APR-90LEX ＊RXPaint90L	APR-160 ＊RXPaint160	APR-160L ＊RXPaint160L	APR-130XLEX ＊RXPaint130XL	
		据付 Installation	床置・天吊・壁掛/floor mount,celling mount,wallmount				床置・天吊/floor mount,celling mount				
		リーチ arm	865mm	1000mm	1200mm	1450mm	1185mm	1710mm	2010mm	2185mm	
	動作範囲 Working range	1軸 No1 axis	±160°	±180°			±160°				
		2軸 No2 axis	±127.5°	+147.5°/-130°			±137.5°				
		3軸 No3 axis	±134.5°	±145°			±142.5°	±150°			
		4軸 No4 axis	±270°								
		5軸 No5 axis	+120.5°/− 109.5°	+140°/−115°			+120°/−105°				
		6軸 No6 axis	±270°								
	最大動作速度 Max working speed	1軸 No1 axis	296°/sec	400°/sec	400°/sec	400°/sec	356°/sec	200°/sec		278°/sec	
		2軸 No2 axis	296°/sec	400°/sec	390°/sec	350°/sec	356°/sec	200°/sec		278°/sec	
		3軸 No3 axis	330°/sec	430°/sec	255°/sec	230°/sec	296°/sec	255°/sec		356°/sec	
		4軸 No4 axis	482°/sec	430°/sec	400°/sec	410°/sec	409°/sec	315°/sec		409°/sec	
		5軸 No5 axis	800°/sec	475°/sec			346°/sec	360°/sec		480°/sec	
		6軸 No6 axis	1125°/sec	760°/sec			1125°/sec	870°/sec		1125°/sec	
	最大速度 Max working speed	直線最大速度 linear max speed	1.8m/sec	2.5m/sec	2.5m/sec	2.5m/sec	2.0m/sec	2.5m/sec	2.5m/sec	1.8m/sec	
	最大可搬質量 Max load weight		6.0kg	20.0kg	15.0kg	12.0kg	6.0kg	34.0kg	28.0kg	10.0kg	ステー形状や、動作速度に制限がでる可能性があります。 Limits are imposed by shape of stay or motion speed.
	定格可搬質量 Rated weight capacity		1.5kg	7.0kg	6.0kg	5.0kg	3.5kg	20.0kg	14.0kg	6.0kg	
	許容負荷モーメント Tolerable load moment		14.5Nm	11.0Nm※	11.0Nm※	11.0Nm※	43Nm	91Nm	91Nm	43Nm	※静的トルクとなります Static torque
	位置繰り返し精度 Position repeatability		±0.033mm	±0.03mm	±0.035mm	±0.04mm	±0.025mm	±0.05mm			
	手首構造 Wrist type		RBR型 RBR type								
	機体質量 Main body weight		46kg	111kg	114kg	116kg	113kg	248kg	250kg	245kg	
	防爆規格 Anti-explosive standard		グループII カテゴリー2,3 ゾーン1,2,21,22 クラスI,II,III Div 1&2 GroupII Category 2 & 3 zones 1,2,21,22 ClassI,II,IIIDiv 1&2	グループIIカテゴリー3 ゾーン2,22 GroupIICategory3 Zone 2,22			グループIIカテゴリー2,3 ゾーン1,2,21,22 クラスI,II,III Div 1&2 GroupIICategory2&3 Zone 1,2,21,22 ClassI,II,III Div 1&2				
	海外規格対応 Foreign electric standards		Cenelec（Europe） CE Factory Mutual（USA）	Cenelec（Europe）CE			Cenelec（Europe） CE Factory Mutual（USA）	Cenelec（E urope）cC S Aus（UAS）		Cenelec（Europe） CE Factory Mutual（USA）	
	塗装色 Color		RAL9016（ホワイト） RAL9016（white）								
対応制御装置 Applicable control unit			CS8EX	CS8C（EX）			CS8EX	CS8C（EX）		CS8EX	
使用条件 Working condition	電源供給 Power supply	電源 Power source	AC200〜480V（フリー電源） AC200〜480V（power source flexibility）								お客様にて供給をお願いします Prepared by user
		所要容量 Required power source	3kVA	2kVA			3kVA	3kVA		3kVA	
	エア供給 Air supply	クリーン度 Cleanness	固形物 Solid material	0.01μm							
			オイルミスト除去 Oil mist elimination	99.99999%以上 Over 99.99999%							
			露点 Dew point	-15℃以下 under -15℃							
		所要量 Required air consumption	掃気時 For scavenging	500Nℓ/min							
			内圧保持 For maintaining inner pressure	50Nℓ/min							
		接続 Connection	Rc 1/2								
	接地 Grounding	制御盤 Control panel	D種 D class grounding								
	環境 Environment	温度 Temperature	+5〜+40℃								

	区分 classification	項目 items	CS8EX	CS8C（EX）	CS8EX	CS8C（EX）	CS8EX	備考 Remarks
制御装置 Control unit	制御軸数 Number of control axes		6軸 6axes					
	操作器（ペンダント） Operation tool（Pendant）		SP1（標準ケーブル 7m 仕様） SP1（standard cable 7m）					17m まで変更可能。右仕様、左仕様あり。 Optional up to 17m. For right or left hand
	軸操作 Axis operation	操作方法 Operation method	リモート操作 Remote operation					
		座標 Coordinates	ベース、関節、ツール Base,Joint, Tool					
	メモリー Memory	内部メモリー Internal memory	256 メガバイト（最小） 256MB（Minimum）					
		バックアップ容量 Back-up capacity	64 メガバイト（最小）コンパクトフラッシュディスク、USB ポート 64MB（Minimum）,compact flash disc, USB		64 メガバイト（最小） コンパクトフラッシュディスク、ディスクドライブ 64MB（Minimum）,compact flash disc, disc drive			
		外部保存 External storage	PC、USB メモリー PC, USB memory					お客様準備 Prepared by user
	入出力 Input/output	汎用入出力 General（I/O）	32/32 デジタル入出力ボード 32/32 input/output board					入出力各 16ch はオプション対応 Each 16ch of I/O as option
		通信 communication	RS232/422 シリアルリンク Modbus server-Erthenet RS232/422 serial link Modbus server-Erehernet					
			Devicenet、Profibus、CANopen/Modbus Devisenet, Profibus, CANopen/Modbus					
	制御装置質量 Control unit weigh ＊ケース付質量 Control unit weight with case		170kg	50kg 110kg	170kg	60kg 120kg	170kg	
	外形寸法 Outside dimensions ＊ケース付外形寸法 Outside dimensions with case		H1000 × W600 × D715	H331 × W445 × D455 ＊ H1035 × W604 × D708	H1000 × W600 × D715	H481 × W445 × D455 ＊ H1035 × W604 × D708	H1000 × W600 × D715	
	機器間ケーブル Cable length between main body and control panel		標準 5m Standerd 5m					10m、15m、20m 対応可能 10m,15m,20m optional
	対応言語 Language		日本語、英語、中国語、その他多数 Japanese, English, Chainese, others					ペンダント表示画面のみ対応。 Only on screen of teaching pendant
	塗装色 Color		RAL7047（グレー） RAL7047（gray）					
制御機能 Control function	制御方式 Control sustem		PTP 位置制御（直線、関節、円弧） PTP position control (linear, articulate, arc)					
	教示 Teaching	ポイント Point	追加 / 修正 / 削除 Addition/modification/deletion					
		機能 Function	塗装条件設定・選択、塗装ガン選択（2 ガン）、スプレーオン / オフ Spray condition setting, selection, gun selection（2 guns）, spra y on/off					3 ガン以上はオプション対応 Optional for over 3guns
			速度、タイマー、汎用出力 Speed, timer, general output					
		編集 Edit	プログラムコピー、削除 Program copy, deletion					
	再生 Replay	速度 Speed	ステップ毎に指定 Specify each step					
		軌跡 Trajectory	直線補間、なめらか軌跡 Linear interpolation, smooth trajectory					
	メンテナンス Maintenance	基準点 Base point	設定、再生 Setting, replay					
		通信ポート Communication port	LAN ポート LAN port					
		OS Operating System	Windows2000, XP					
		オプション Optional	リモートメンテナンス Remote maintenance					オプション Optional
エアパネル Air panel	制御ガン数 No. of controlled guns		1 〜 2 ガン 1 〜 2 guns					複数ガン対応も可能 Adaptable to plural guns as option
	制御ガンタイプ Type of gun		エアスプレーガン、静電エアスプレーガン Air spray gun, electrostatic gun					E- ベル、エアレスはオプション対応 Optional for E-bell, airless
	制御エア回路 Controlled air line		霧化エア、パターンエア、吐出量エア Atomization air, pattern air, paint output air					
	使用バルブ Employed valve		電空バルブにより条件記憶可能 Possible to store conditions in memory by ELPNEU valve					

塗装テストに関して　About a painting test

当社横浜工場「コミュニケーションラボ&ショールーム（略称:CLS ）」では、各種塗装ロボットを常設してお客様の様々な被塗物に合った塗装方法をご提案させていただいております。
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This Communications laboratory & showroom(CLS for short) at our Yokohama plant exhibits various kinds of painting robots, as well as the most suitable painting methods for a great variety of workpieces submitted by customers . Customers witness actual painting demonstrations and can check whether the procedure they have in mind is viable. If you would like to have a painting test done here, please feel free to contact our related sales department with the following information:

・被塗物の材料、寸法、重量
Material, weight and dimensions of the workpiece
・塗料の種類
Kinds of paints you want used
・希望膜厚
Desired paint film thickness
・乾燥条件
Drying conditions
・生産量
Production quantity

⚠ 安全上の注意　Safety Precautions:

●塗装ロボットのご使用に際しては、必ず取扱説明書、その他付属図書などをすべて熟読し、正しくご使用いただくようお願いいたします。

Before operating painting robots, be sure to carefully read the instruction manual and related documents and use the products correctly.

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The products described in this catalog are general painting robots. Before using them for operations which may cause bodily injury due to failure of the products or wrong operation, be sure to consult our sales department without delay.

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Some photos and illustration in this catalog are taken or drawn without safety fences and other safety equipment or devices which are designated by safety regulations.

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We periodically hold Painting Robot Seminars to explain how our customers can operate our painting robots safely. Please contact our related sales department for details.

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When products are purchased in Japan and exported to another co untry, first check the local regulations and safety standards in the country to which you are exporting the products, and export them accordingly.
Specifications in this catalog are subject to change without not ice owing to improvements of products.

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