# ANEST

#### ● 커튼 플로우 도포 장치 『FL 시리즈』

#### POINT

- 도포하려는 액체 자신의 점성을 이용하여 커튼 형태의 막을 형성시켜 피도물에 직접 도착시키는 도장방법.
- 도료손실이 없는 경제성이 뛰어난 도장기.
- 균일한 도포로 뛰어난 도장면을 획득.
- 컨베이어 속도를 40~120m/min로 조정하여 스피드한 도장이 가능.
- 도료 미스트가 없어 위생적인 작업환경을 확보.
- 더블 헤드型은 2액성 도료의 도장도 가능.
- 유효도장폭 최대 2500mm의 제품도 수주생산.
- 취급이 간편하여 특별한 도장기술이 필요치 않음.



#### 특징

- Flow Coater는 펌프부, 헤드부, 컨베이어부로 구분
- 펌프部
- Packingless의 원심펌프를 채용
- 모터는 안전증방폭형, 인버터 제어
- 토출량은 Hz로 표시되어 수치 관리 용이
- 도료필터 챔버는 외부에 설치, 청소·교환이 용이
- 도료용기는 취급이 간단하여 도료 교환작업이 용이

#### ■ 헤드部

- 간단한 개폐동작으로 헤드內의 청소가 용이
- FL-S6G/W6G, S12G/W12G는 에어실린더에 의한 수평 슬라이드 방식
- 헤드의 간극은 정압장치와 스토파에 의해 확실히 고정
- 헤드內의 도료잔량은 최소한이 되도록 설계

#### ■ 컨베이어部

- 컨베이어 속도는 도막의 결정에 중요한 포인트
- 컨베이어 속도는 인버터 제어로 미세조정과 스피드 표시
- 우레탄계 수지製 벨트로 오염과 시너에 의한 탈피 방지
- 크라운 형상의 롤러와 테이크업장치로 사행 조정

#### ■ 관련기기 (옵션)

- 소형 피도물의 낙하방지를 위한 이송 망
- 고점도 도료, 접착제용의 기어펌프
- 도료 냉각장치
- 고밀도 도료 필터(100 µm 필터)
- 바람막이用 아크릴커버



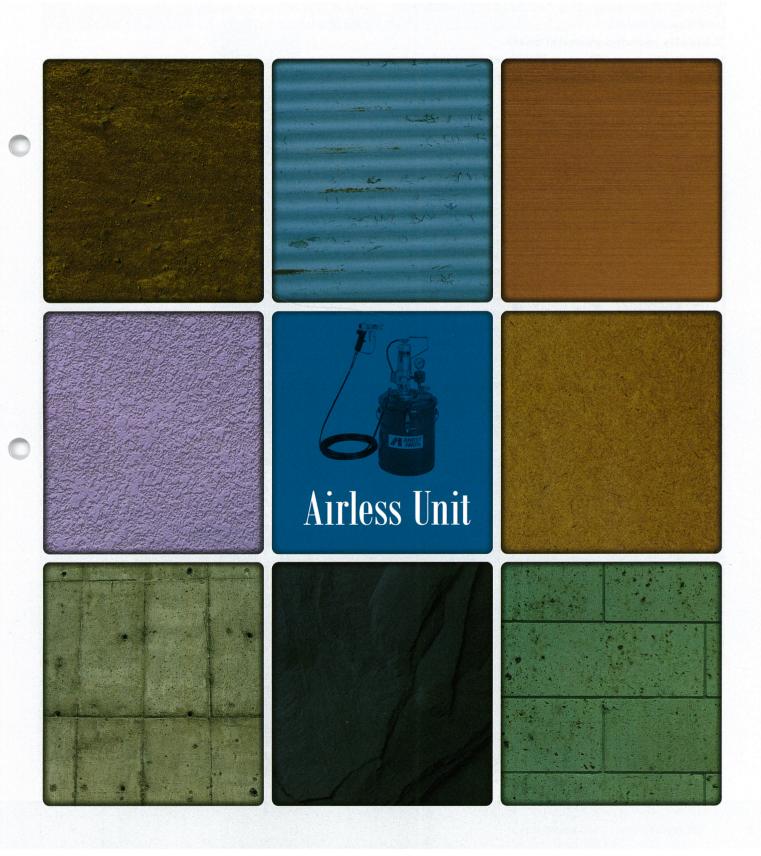
#### ■ FLOW COATER 주요사양

형식		FL-S3G	FL-W3G	FL-S6G	FL-W6G	FL-S12G	FL-W12G
헤드	HEAD 형식	싱글 헤드	더블 헤드	싱글 헤드	더블 헤드	싱글 헤드	더블 헤드
(Head)	커튼 全폭	450mm		720mm		1320mm	
	유효 도포폭	300mm		600mm		1200mm	
	HEAD 재질	청동주물		강제에 불소 코팅		강제에 불소 코팅	
	HEAD 개폐방식	上下Hinge		에어실린더에 의한 =	수평구동	에어실린더에 의한 4	<b>수평구동</b>
	HEAD 상하 거리조정	100, 150, 200mm		100, 150, 200mm		100, 150, 200mm	
	EDGE 조정범위	0~1.0mm		0~1.0mm		0~1.0mm	
	EDGE 재질	SUS		SUS		SUS	
평프	펌프 구동 모터	0.75 kw/4≒	0.75 kw/4∃X2sets	0.75 kw/2≒	0.75 kw/2⊒X2sets	0.75 kw/2≒	0.75 kw/2∃X2sets
(Pump)	펌프 회전수 표시	인버터에 의한 <b>Hz</b> 수:	치 표시	인버터에 의한 <b>Hz</b> 수:	치 표시	인버터에 의한 <b>Hz</b> 수	치 표시
	모터 구조	안전증방폭형		안전증방폭형		안전증방폭형	
	모타 전도 방식	모타 직결형		모타 직결형		모타 직결형	
	펌프 토출량(청수)	25 ℓ /min (60Hz)		85 ℓ /min (60Hz)		85 ℓ /min (60Hz)	
	도료용기	10 ℓ	10 ℓ x 2sets	20 ℓ	20 ℓ x 2sets	40 ℓ	40 ℓ x 2sets
	펌프 구조	Centrifugal Pump式		Centrifugal Pump式		Centrifugal Pump式	
	펌프 필터 챔버	#30,#40, 각 1매		#30,#40, 각 1매		#30,#40, 각 1매	
	도료 바이패스 회로	無		有		有	
	도료 호스	Ф19x 650mm, 연질년	비닐	Φ25x 1400mm, 초신	염비닐	Φ25x 1400mm, 초산	염비닐
컨베이어	컨베이어 구동 모터	0.4kw/4⊒		0.75kw/4≒		1.5kw/4≒	
(Conveyor)	컨베이어 속도표시	인버터에 의한 스피드	三 표시	인버터에 의한 스피드	三 표시	인버터에 의한 스피드	三 표시
	컨베이어 속도범위	40~120m/min		40~120m/min		40~120m/min	
	모터 구조	전폐외선형		전폐외선형		전폐외선형	
	엔드레스 벨트	폭 300mm, 폴리우레	탄	폭 600mm, 폴리우리	탄	폭 <b>1200mm</b> , 폴리우리	베탄
	컨베이어 軸受 간격	180mm	200mm	230mm	265mm	230mm	265mm
	텐션	테이크업式		테이크업式		테이크업式	
電裝관계	제어반	펌프. 컨베이어:버튼(	ON/OFF	펌프. 컨베이어:버튼	ON/OFF	펌프. 컨베이어:버튼(	ON/OFF
기타	기체촌법(전장 <b>x</b> 전폭)	2600x1100mm	2700x1100mm	3600x1800mm	3900x1800mm	3600x2400mm	3900x2400mm
	컨베이어 높이	800mm		850mm		850mm	
	무게	302Kg	419Kg	620Kg	850Kg	920Kg	1230Kg
	도색	Pastel Blue		Pastel Blue		Pastel Blue	

- 더블헤드 형식은 수주 생산품입니다.
- 제어반 및 헤드개폐用 3Way Cock은 컨베이어 출구측에 설치되어 있습니다 (FL-S6G/W6G, FL-S12G/W12G)
- FL-S3G/W3G의 펌프 토출량은 90Hz時 40ℓ/min입니다.



# **AIRLESS SPRAY UNIT**



## MAIN COMPONENTS OF AN AIRLESS SPRAY UNIT

In an airless system a plunger pump or diaphragm atomizes the paint by forcing it through a small orifice (nozzle tip) at high pressure (9.8MPa, around 100 kgf/cm<sup>2</sup>). An airless system has the following advantages.

#### Advantages over an air spray system.

#### 1.Vastly improved working conditions and minimum air pollution.

Reduced overspray and spray rebound allow for better work conditions for painters.

#### 2.Greatly reduced material costs.

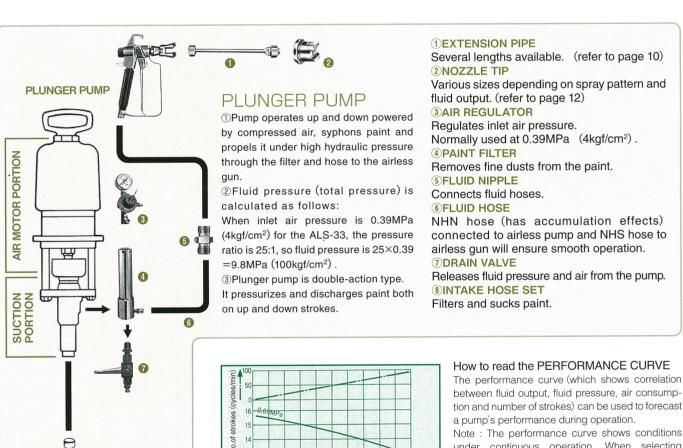
Less solvent is required because higher viscosity paint can be applied. In addition, less overspray means saving paint and solvent.

#### 3.Excellent coating speed.

Painting time is greatly reduced through faster application. since one pass produces an even film 2 to 3 times thicker than that of an air spray system.

#### 4. Wide range of airless spray units available.

To meet any requirement, our integrated design program makes it possible to select the most suitable setup among various plunger type and diaphragm type models and over 80 sizes of standard nozzle tips.



# No.of 500 400 300 fluid pressure (MPa) air fluid output (&/min)

Note:0.29/0.49/0.69MPa in graph shows air pressure \*1MPa is about 10.2kgf/cm2

#### How to read the PERFORMANCE CURVE

between fluid output, fluid pressure, air consumption and number of strokes) can be used to forecast

Note: The performance curve shows conditions under continuous operation. When selecting compressor, calculate roughly 1 hp for every 100 & /min of air consumption.

Under intermittent operation, select lower hp compressor.

#### Example: ALS-33

In case of fluid output 1 &/min. and operating air pressure 0.49MPa (5kgf/cm²) you can read from graph:

- 1. Fluid pressure is 10.16MPa (103 kgf/cm²) at the point of intersection with 0.49MPa (5 kgf/cm²) solid line.
- 2. Air consumption is 175 l/min, at the point of intersection with 0.49 MPa (5 kgf/cm²) dotted line. Required compressor is 2 hp under continuous operation and 1 hp under intermittent operation.
- 3. Number of strokes is around 35 cycles/min. at the point of intersection with chain line.

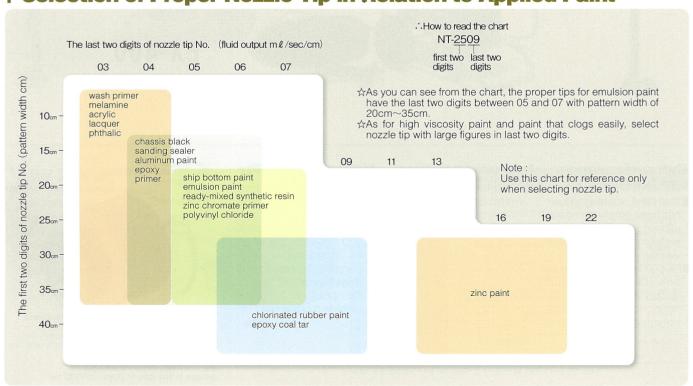
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## SELECTION OF AIRLESS MODEL AND NOZZLE TIP

#### | Selection Table Depending on Applied Paint and Application

Most suitable:     can be used	widely used		Mod	lel	EX- 400 401	EX- 700	EX- 900	ALS- 122 123	ALS- 331B 332B 333B	ALS- 431B 432B 433B	ALS- 453B	ALS- 653
(Note) Use this information f as conditions will diff paint viscosity, hose etc.	er depending on	Vis	scosi	Low Mid High								
Main paint	Main application	Low	Mid	High								
lacquer	metal, wood				0	0	0	0	0	0	0	0
melamine	general metal				0	0	0	0	0	0	0	0
chassis paint	vehicle				0	0	0	0	0	0	0	0
phthalic	vehicle				0	0	0		0	0	0	0
Water-based paint	construction				0	0	0	0	0	0	0	0
ready mixed synthetic	construction				0	0	0	0	0	0	0	0
acrylic	general metal				0	0	0	0	0	0	0	0
vinyl	construction, metal				0	0	0	0	0	0	0	0
red lead	steel frame					0	0	0	0	0	0	0
general anti-corrosive	steel frame				0	0	0		0	0	0	0
synthetic resin varnish	wood								0	0	0	0
epoxy resin	general metal				0	0	0		0	0	0	0
urethane	wood								0	0	0	0
ship-bottom	shipbuilding								0	0	0	0
chlorinated rubber	shipbuilding								0	0	0	0
epoxy coal tar	shipbuilding, metal						0					0
single-layer, elastic paint	construction						0					0

#### | Selection of Proper Nozzle Tip in Relation to Applied Paint





## High performance, high function

- The paint sucking power has been greatly increased allowing for stable paint supply from low to high viscosity.
- ●EX-900 has a dual-pressure adjusting system and utilizes the capacity of its motor effectively for high pressure use.

#### Improved handling

•Suction hose is flexible, installed in vertical direction and easy to handle.

#### Improved durability

- •All models use fine ceramics for exhaust valve.
- ●EX-900 (E) and EX-2200 (E) use fine ceramics for intake valve also. Durability is more than 5 times higher than that of the previous tungsten carbide models.

Low pressure knob. Max, 17.7MPa (180kgf/cm²) Dual-pressure adjusting system adopted in EX-900 for low viscosity paint

> High pressure knob. Max. 23.5MPa (240kgf/cm²) for high viscosity paint only

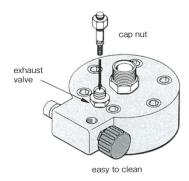
Note: When painting low viscosity paint, such as topcoat and sealer etc., be sure to set paint pressure to less than 17.7MPa (180kgf/cm²)

## hable intake hose. New series with increased output!!



#### **Easier maintenance**

The exhaust valve can be partially separated by removing its cap nut, making it easy to remove foreign matter and release the ball in case it becomes stuck (except EX-400, 401).



Mod	del		EX-400 Cart type	EX-401 Stand type	EX-700 Cart type	EX-900 Cart type
	x. fluid ssure	Mpa (kgf/cm²)	17.7 (180)		20.6 (210)	23.5 (240)
Max	k. fluid output	& /min (US gal)	3.0 (0.79)		5.2 (1.38)	6.3 (1.66)
Pov	ver & rated ou	tput	Single-phase 0.4kW		Single-phase 0.75kW	Single-phase 0.9kW
Driving system		Direct of	coupled	Direct	coupled	
Flui	id outlet	G (PF)	(	3 1/4 (PF 1/4 male	e)	G 3/8 (PF 3/8 male)
	gth × Weight leight	mm (in)	590×322×786 (23.2×12.7×31)	434×233×323 (17.1×9.2×12.7)	620×366×870 (24.4×14.4×34.3)	620×366×870 (24.4×14.4×34.3)
Weight kg (lbs)		25 (55)	23 (50.6)	35 (77)	40 (88)	
San	Airless gun ALG-7		ALG-7	ALG-7		
Standard accessory	Fluid hose		20m (NHS-520C)		30m(NHS-630D)	30m (NHS-930C)
Fluid pressure gauge		-	_	Equi	ipped	

Note: Nozzle tip is not included. It is optional (Refer to back cover) .

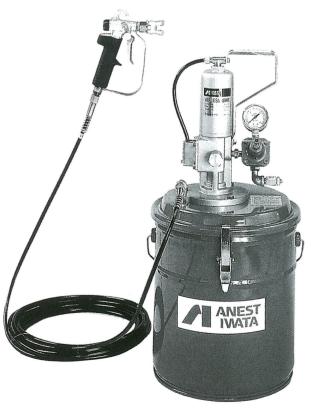
## SMALL TYPE Small but tough design general purpo

## **ALS-123**

Cart type for Chassis Black paint Max. applicable tank capacity: 14& (Tank total capacity: 21&)





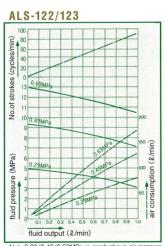


## **ALS-122**

Tank type

Max. applicable tank capacity: 14&

(Tank total capacity: 21&)



Note:0.29/0.49/0.69MPa in graph shows air pressure. \*1 MPa is about 10.2kgf/cm²

## se, versatile design

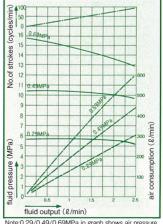
## **ALS-332B**

Tank type
Max. applicable tank capacity: 32 &
(Tank total capacity: 43 &)





#### ALS-331B/332B/333B



V	lote:0.29/	0.49/0.	69MPa i	in.	graph	shows	air	pressure.	
×	1MPa is	about	10.2kgf	1/0	cm <sup>2</sup>				

Model			ALS-122 Tank type	ALS-123 Cart type	ALS-331B Stand type	ALS-332B Tank type	ALS-333B Cart type	
Max. flui	id pressure Mi	Pa(kgf/cm <sup>2</sup> )	13.7	(140)		17.2 (175)		
Max. fluid	d output & /r	min (US gal.)	1.0 (	0.26)		2.5 (0.66)		
Pressure	e ratio		20	: 1		25 : 1		
Max. operating air pressure MPa(kgf/cm²)					0.69 (7)			
Fluid outlet G (PF)			G 1/4 (PF 1/4 male)					
Air inlet		G (PF)	G 1/4 (PF 1/4 male)					
Length ×	Width × Height	mm (in)	330 × 315 × 655 (13.0 × 12.4 × 25.8)	450 × 325 × 860 (17.7 × 12.8 × 33.9)	335 × 385 × 820 (13.2 × 15.2 × 32.3)	375 × 385 × 825 (14.8 × 15.2 × 32.5)	430 × 420 × 870 (16.9 × 16.5 × 34.3)	
Weight		kg (lbs)	10 (22)	12 (26.4)	18 (39.6)	20 (44)	23 (50.6)	
Sta Airle	ess gun model		ALG	g-72	ALG-7	ALG-72	ALG-7	
Airless gun model Fluid hose		5m (NHS-605D)	10m (NHN-310B)		10m (NHS-610D)			
	nt filter		_	_	TF-8	TF-81	TF-8	
Pair			_	Extension pipe (30cm), cart		Drain valve		

Note : Nozzle tip is not included. It is optional (Refer to back cover)  $\ .$ 

## **MEDIUM TYPE**







ALS-432B Tank type

Max. applicable tank capacity: 32 l (Tank total capacity: 43 l)



ALS-433B Cart type

## MEDIUM TYPE HIGHEST PRESSURE TYPE

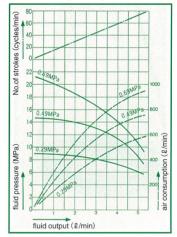
ALS-453B Cart type



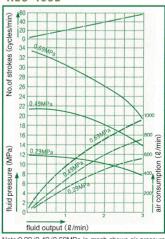
Мо	odel	ALS-431B Stand type	ALS-432B Tank type	ALS-433B Cart type	ALS-453B Cart type		
Ма	ax. fluid pressure MPa(kgf/cm <sup>2</sup> )		20.6 (210)		36.3 (370)		
Ма	x. fluid output & /min (US gal.)		5.3 (1.4)		3.0 (0.79)		
Pre	essure ratio		30:1		53:1		
	ux. operating air MPa(kgt/cm²)		0.69	) (7)			
Flu	id outlet G (PF)	G 1/4 (PF 1/4 male)					
Air	inlet G (PF)	G 1/4 (PF 1/4 male)					
Ler	ngth × Width × Height mm (in)	335 × 385 × 900 (13.2 × 15.2 × 35.4)	375 × 380 × 910 (14.8 × 15.0 × 35.8)	430 × 420 × 920 (16.9 × 16.5 × 36.2)	430 × 420 × 920 (16.9 × 16.5 × 36.2)		
We	eight kg (lbs)	26 (57.2)	27 (59.4)	34 (74.8)			
Sta	Airless gun model	ALG-7	ALG-7 ALG-72		.G-7		
Airless gun model Fluid hose Paint filter Paint filter Prain valve			10m (NHS-610D)		10m (NHH-610 High pressure)		
Paint filter		TF-8	TF-8 TF-81 TF-8		TF-9 (High pressure)		
VIOS	Drain valve	Equipped					

Note: Nozzle tip is not included. It is optional (Refer to back cover)

#### ALS-431B/432B/433B



ALS-453B



Note:0.29/0.49/0.69MPa in graph shows air pressure. \*1MPa is about 10.2kgf/cm²

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## **BIG TYPE**

ALS-653 Cart type

## Large capacity allows for extra guns.

- For medium and heavy viscosity material and capable of supporting multiple guns with small tip sizes.
- ■To deliver extra volume to high build-up coatings.

## Most suitable for heavy viscosity material.

- For highly viscous, hard to atomize paints.
- For painting high or hard-toreach places through long material hoses.



Model			ALS-653 Cart type
Max. fluid	d pressure	MPa(kgf/cm <sup>2</sup> )	27 (275)
Max. fluid	output	ℓ /min (US gal.)	12.5 (3.3)
Pressure	ratio		45 : 1
Мах. оре	erating air pressure	MPa (kgf/cm <sup>2</sup> )	0.6 (6.1)
Fluid out	let	G (PF)	G 1/4 (PF 1/4 male)
Air inlet		G (PF)	with Air Quick Joint (1/2 Air hose)
Length ×	Width × Height	mm (in)	800 × 730 × 1200 (31.5 × 28.74×47.24)
Weight		kg (lbs)	86 (189)
Standard	Paint filter (Intermediate and intake)		Both equipped
accessory	Drain valve		Equipped

Note: Airless spray gun, nozzle tip and fluid hose are not included. They are optional (Refer to page 10, 11 and back cover)

# 

Note:0.29/0.49/0.69MPa in graph shows air pressure.

## **AIRLESS SPRAY GUNS**

## ALG-7/ALG-72/ALG-73 Airless Spray Guns

#### **Easier cleaning**

 Larger size of paint passages reduces passage resistance and prevents paint from depositing.

#### **Increased safety**

●The withstanding pressure is more than four times the max. operating pressure. As a safety factor and due to a recent trend, we have removed the spray lock (the safety lock is equipped as before).

#### Improved handling

• Redesigned trigger reduces triggering load, resulting in smoother triggering.

#### **Compact and lightweight**

•We have greatly reduced the overall weight while keeping a strong structure to withstand pressure.

#### **Easier maintenance**

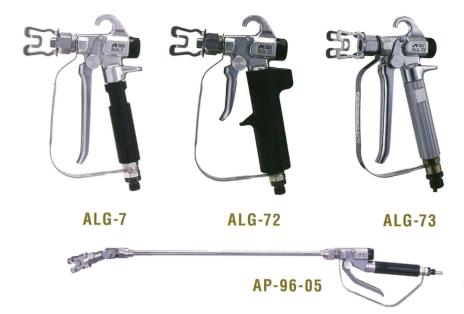
- Assembly and disassembly require only general tools such as spanners, hex. wrenches, etc. No need for special tools.
- Assembled fluid needle set makes assembly easy.
- \*ALG-73 has no built-in filter since it is for high viscosity paints.

## AP-96 Airless pole gun

 Ideal for spraying "hand-to-reach" places such as high walls, ceilings or inside of piping. Choice of extension lengths is 0.5, 1.0, 1.5 and 2.0m.

## **AL-96 Automatic Airless Gun**

- High pressure type with compact, lightweight design.
- Paint passage made of stainless steel (SUS 303, G2) suitable for water-based paint.
- Special packing for sealing paint ensures long life.
- •Fluid needle packing can be tightened from outside without disassembling.
- Designed with a stronger shut-off action and to avoid residual fluid in the cap of the gun, this way preventing spitting.



Model	Max, fluid pressure Mpa (kgf/cm²)	Mass (g)	Application	Connection
ALG-7	25.0 (255)	440	general purpose, 4-finger grip	G 1/4 (PF 1/4)
ALG-72	25.0 (255)	415	general purpose, 2-finger grip	G 1/4 (PF 1/4)
ALG-73	25.0 (255)	450	high viscosity paint	G 3/8 (PF 3/8)
AL-96	25.0 (255)	480	automatic painting	G 1/4 (PF 1/4)
AP-96-05	27.5 (280)	970	ships, bridges, "hard-to reach" places	G 1/4 (PF 1/4)
AP-96-10	27.5 (280)	1170	ships, bridges, "hard-to reach" places	G 1/4 (PF 1/4)
AP-96-15	27.5 (280)	1450	ships, bridges, "hard-to reach" places	G 1/4 (PF 1/4)
AP-96-20	27.5 (280)	1700	ships, bridges, "hard-to reach" places	G 1/4 (PF 1/4)



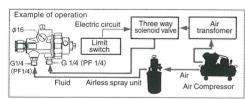
#### **AL-96**

## Tip Filter Set

Code No.93978600



●The tip filter set (fitted to gun tip) is an optional part for the AL96 automatic gun.



#### **Gun Swivel Head**

●Thanks to its 180° swivel, it can spray in complicated places where other guns cannot



## **Extension Pipe**

Model	Length (mm)
ALP-151B	150
ALP-301B	300
ALP-501B	500
₩ ALP-302	300 Flexible tube

●Pipe of ALP-302 can be easily bent.



## **TT-3B Turn Tip Cleaner**



●For instant flush-out of nozzle tip without removing nozzle tip from gun when it clogs.

## **Exclusive nozzle tip**

Tip model	Fluid output (2 /min)	Pattern width (mim)	Equivalent model of Anest Iwata's normal nozzle tip
T-311B	about 0.3	about 175	NT-1503, 1504
NT-413B	about 0.4	about 200	NT-2003, 2004
NT-515B	about 0.6	about 320	NT-3003, 3004
NT-617B	about 0.9	about 360	NT-3504, 3505
NT-821B	about 1.45	about 370	NT-3507

#### **Free-Pattern Tip**



- Easy adjustment of pattern width and fluid output by rotating Knob.
- ●Instant flush-out of nozzle tip by rotating
- •Simple construction, light weight (27g) and easy handling.

Model	Application	Pattern width (mm)	Fluid output ( 2 /min)	Equivalent orifice dia. (mm)	Equivalent NT nozzle tip
FPT-020	Small jobs (chassis-black) Steel-frames (anti- corrosive primer)	~ 300	~ 0.9	0.18 ~ 0.44	2003 ~ 3005
FPT-028	Construction (emulsion, ready-mixed synthetic resin) Steel-frames (anti-corrosive primer)	~ 400	~ 1.2	0.30 ~ 0.51	2005 ~ 4005
FPT-041	Shipbuilding (chlorinated rubber, epoxy coal tar)	~ 400	~ 2.0	0.43 ~ 0.78	2009 ~ 4011
FPT-049	Large output of heavy viscosity fluid	~ 300	~ 3.0	0.53 ~ 1.09	1013 ~ 3019

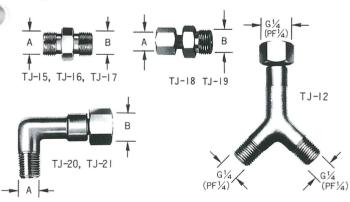
## **OPTIONAL EQUIPMENT**

#### **Universal Joint**





## **High Pressure Fluid Nipple**



Model	Α	В
TJ-15	G1/4 (PF1/4)	G1/4 (PF1/4)
TJ-16	G1/4 (PF1/4)	G3/8 (PF3/8)
TJ-17	G3/8 (PF3/8)	G3/8 (PF3/8)
TJ-18	G3/8 (PF3/8)	G1/4 (PF1/4)
TJ-19	G1/4 (PF1/4)	G3/8 (PF3/8)
TJ-20	G1/4 (PF1/4)	G1/4 (PF1/4)
TJ-21	G3/8 (PF3/8)	G1/4 (PF1/4)

#### Hopper for high viscosity paint

- ●Can be fitted to EX-900. (Fitting joint is necessary).

  Capacity: 20ℓ

PH-20B

#### **Fluid Hose**

Model	Max. fluid pressure Mpa (kgt/cm²)	Length (m)	Coupling (in)	Kind of braid	Characteristics				
NHS-5C	20.6	10,20,30	G1/4 (PF1/4)	High Tensile Strength Steel-braided	flexible hose				
NHS-60D	20.6	5,10,20,30	G1/4 (PF1/4)	High Tensile Strength Steel-braided	flexible hose				
NHS-930C	17.7	30	G3/8 (PF3/8)	High Tensile Strength Steel-braided	flexible hose				
NHH-610B	42.5	10	G1/4 (PF1/4)	nylon-braided	double-braided high pressure hose				

## **NOZZLE TIP**





Fluid output of NT2505 is as follows;

!5cm×0.5ml/sec/cm=12ml/sec. 2.5 ml/sec×60sec=750 ml/min.(0.75liter/min.)

#Fluid output is for lacquer primer at

## Selection Table of Standard Nozzle Tip and Airless Model

	fluid output		Pattern width	equivalent		Airiess Model TT-3B									TT-3B									
tip number				equivalent orifice dia.	EX-400 EX-401		EX-700		FX-	EX-900		EX-	EX-	EX- EX-	ALS-	ALS-	ALS-	ALS-	AL C	TT-3B Turn Tip Cleaner Exclusive nozzle tip		e-Patt	tern T	ip
	m²/sec	sec 2/min	cm (inch)	mm	50HZ	60HZ	50HZ	0HZ 60HZ (	EX- 700EB (* 1)	50HZ	60HZ	900EB (※1)	2200 (※ 1)	2200E (※ 1)	122 123	331B 332B 333B	431B 432B 433B	453B	ALS- 653	Exclusive nozzle tip				
NT1003	3	0.18	(IIIOII)	0.20	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				Section 2	No. of the last of
NT1004	4	0.24	7~13	0.23	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT1005	5	0.30		0.25	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT1006	6	0.36		0.29	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT1007	7	0.42		0.31	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT1503	4.5	0.27		0.25	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT-311B				
NT1504	6	0.36	40.40	0.29	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT1505	7.5	0.45	13~18	0.32	•		•		•		•	•	•	•		•	•	•	•					
NT1506 NT1507	9	0.54		0.34	•	•	•	•			•	•	•			•	•	•						
NT2003	6	0.36		0.29	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	101030355510	Mat la			_
NT2004	8	0.48	1	0.32	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT-413B				
NT2005	10	0.60	1	0.32	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT2006	12	0.72		0.39	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1				
NT2007	14	0.84	18~23	0.43	•	•	•	•	•	•	•	•	•	•		•	•	•	•	1				
NT2009	18	1.08	1	0.47	•	•	•	•	•	•	•	•	•	•		•	•	•	•				7	
NT2011	22	1.32	1	0.53	Δ	•	•	•	•	•	•	•	•	•		•	•	•	•	1				
NT2013	26	1.56	1	0.56		_	•	•	•	•	•	•	•	•		•	•	•	•					
NT2503	7.5	0.45		0.32	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		020			
NT2504	10	0.60		0.36	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		4			
NT2505	12.5	0.75		0.40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		FP			
NT2506	15	0.90	00 00		0.44	•	•	•	•	•	•	•	•	•	•		•	•	•	•				
NT2507	17.5	1.05	23~28	0.47	•	•	•	•	•	•	•	•	•	•		•	•	•	•					
NT2509	22.5	1.35		0.53		Δ	•	•	•	•	•	•	•	•		•	•	•	•					
NT2511	27.5	1.65		0.58			•	•	•	•	•	•	•	•			•	•	•					
NT2513	32.5	1.95		0.63			•	•		•	•	•	•	•		•	•	•	•					949
NT3003	9	0.54		0.34	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT-515B				FTP-049
NT3004	12	0.72		0.39	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	111 0102				L 1
NT3005	15	0.90		0.44	•	•	•	•	•	•	•	•	•	•		•	•	•	•					
NT3006	18	1.08		0.47	•	•	•	•	•	•	•	•	•	•		•	•	•	•					
NT,3007	21	1.26		0.51	Δ	•	•	•	•	•	•	•	•	•				•	•	-		-028		
NT3009	27	1.62	28~33	0.58		+	•	•	•	•	•	•	•	•					•			FTP.		
NT3011	33	1.98	-	0.64			•	•	•	•	•	•	•			•	•			-		-		
NT3013 NT3016	39 48	2.34	-	0.70			Δ										•	•		-			4	
NT3016	57	3.42	-	0.78													•						FPT-04	
NT3019	66	3.96	-	0.87					-	-			•	•			•				$\vdash$		#	
NT3503	10.5	0.63		0.36	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT3504	14	0.84		0.43	•		•	•	•	•	•	•	•	•		•	•	•	•					
NT3505	17.5	1.05		0.47	•	•	•	•	•	•	•	•	•	•		•	•	•	•	NT-617B				
NT3506	21	1.26		0.51	Δ	•	•	•	•	•	•	•	•	•		•	•	•	•		1			
NT3507	24.5	1.47		0.55		Δ	•	•	•	•	•	•	•	•		•	•	•	•	NT-821B	1			
NT3509	31.5	1.89	33~38	0.62			•	•	•	•	•	•	•	•		•	•	•	•		1			
NT3511	38.5	2.31		0.70			Δ	•	•	•	•	•	•	•		174.5	•	•	•	1				
NT3513	45.5	2.73		0.77				Δ	Δ	•	•	•	•	•			•		•					
NT3516	56	3.36		0.85						Δ	•	•	•	•			•		•					
NT3519	66.5	3.99		0.94							Δ	Δ	•	•			•		•					
NT3522	77	4.62		1.02									•	•			•		•					
NT4003	12	0.72		0.39	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
NT4004	16	0.96	38~43	0.45	•	•	•	•	•	•	•	•	•	•		•	•	•	•	-				
NT4005	20	1.20		0.50	Δ	•	•	•	•	•	•	•	•	•		•	•	•	•					
NT4006	24	1.44		0.55		Δ	•	•	•	•	•	•	•	•		•	•	•	•	-				
NT4007	28	1.68		0.59			•	•	•	•	•	•	•	•		•	•	•	•	-				
NT4009	36	2.16		0.67			•	•	•	•	•	•		•		•	•	•	•	-				
NT4011	44	2.64		0.76						•	•	•	•	•			•	•	•					
NT4013	52	3.12		0.82						Δ	•	•	•	•			•		•	-				
NT4016	64	3.84	-	0.92					-	-	Δ	Δ	•	•			•		•	-				
NT4019	76	4.56	-	1.01		-			-	-	1		•	•			•	-	•	-				
NT4022	88	5.28	1	1.09	1	1	I	1	1	1	1	1				1					1			

※○Marked model in R column has Reverse Turn Tip also for Turn Tip Cleaner. 

※Nozzle tip can be used in 

● marked model. 

※△ suitable but subject to condition.

\*1 Production end model

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



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