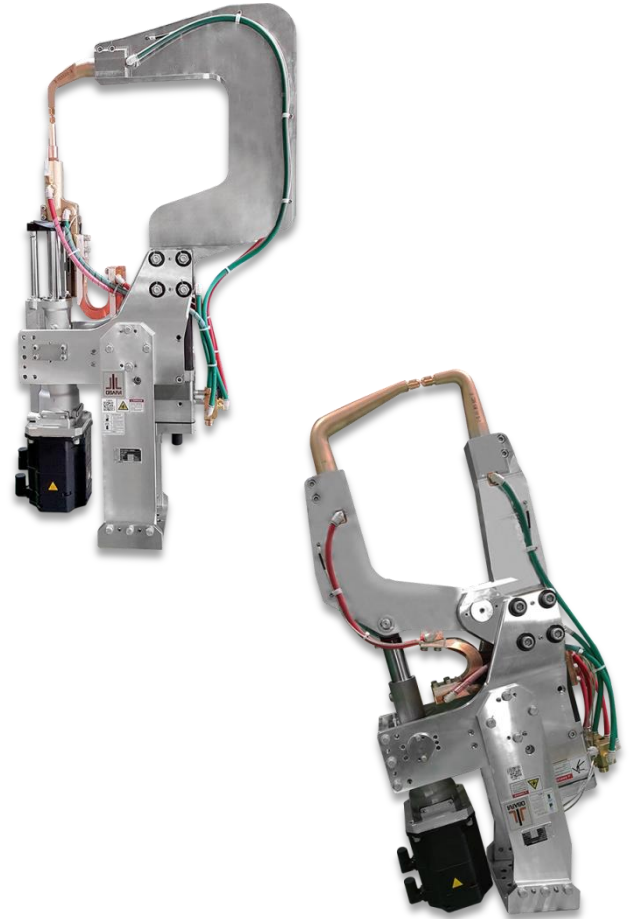


O B A R A K O R E A


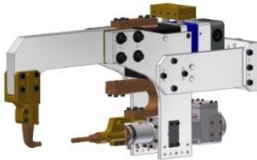
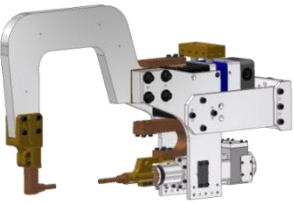


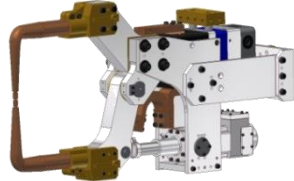
X2C (Series Servo Gun)

경량 & 뛰어난 적용성

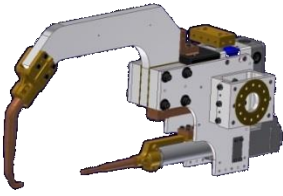
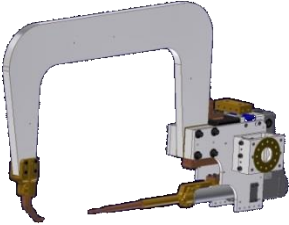
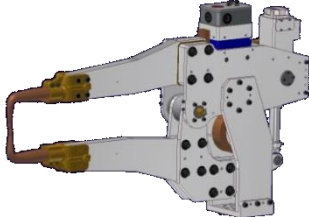
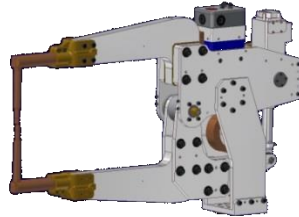


X2C Series Servo Gun

Standard X2C

	Small	Medium	Large
C-type			
X-type			

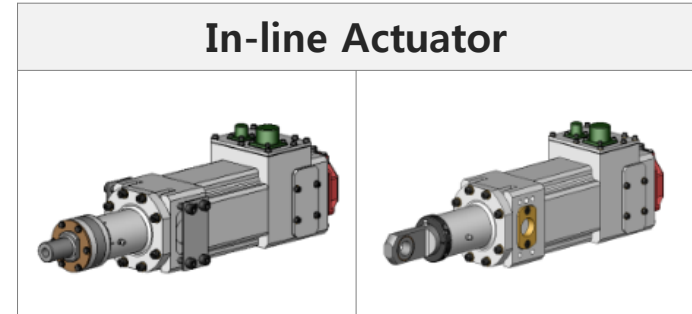
Extra-Large X2C

Extra-Large C-type	Extra-Large X-type
 	 

X2C Gun 개발배경

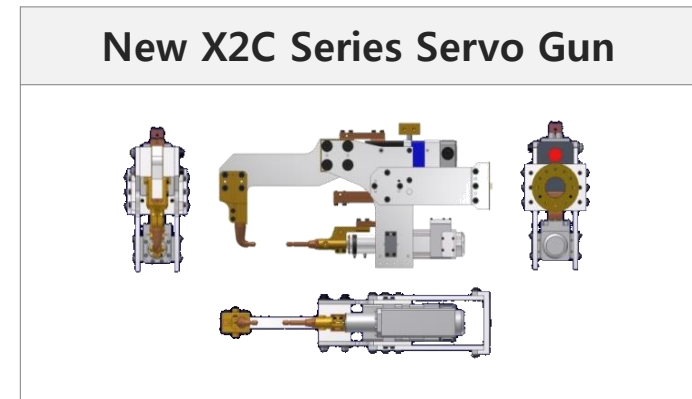
변화 욕구 (새로운 시장 요구)

- In-Line Actuator의 상용화
- 주물품에 대한 수요 감소
- 방향성 설계 감소
- Spare Gun의 수량감소



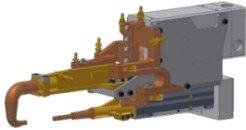
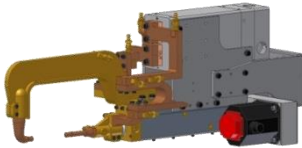
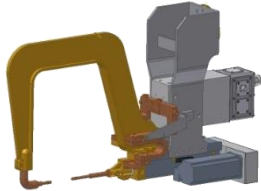
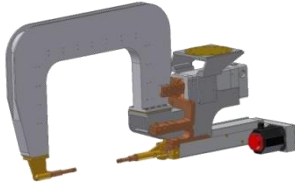
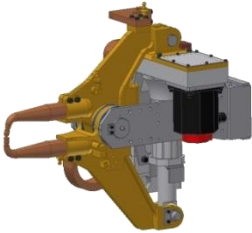
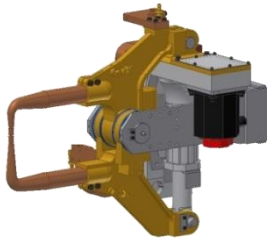
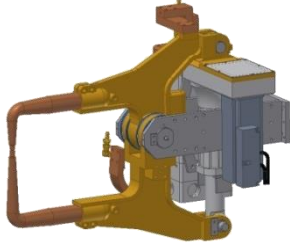
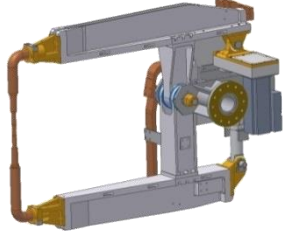
경쟁사와의 차별화

- 부가가치 제품
 - 경량+소형+표준화
 - 스페어 파트 감소 효과
- 소형로봇의 인기 증가
 - 선두개발업체 되는것에 대한 메리트
 - 새로운 제조기술에 대한 활용



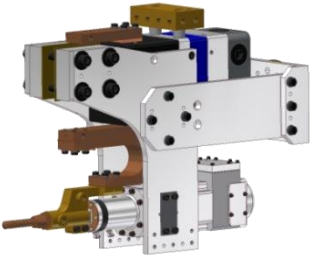

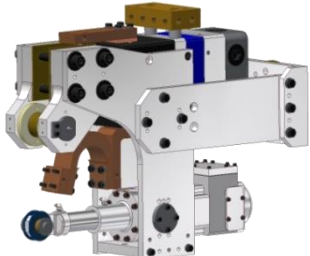
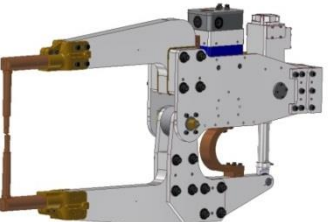
Standard Body

More than 85% of C/X Bodies require only up to 450mm*

	Small	Medium	Large	Special
	~150	150~300	300~450	450~
	21%	48%	21%	10%
C-type				
	15%	60%	10%	15%
X-type				

Standard Body

More than 85% of C/X Bodies require only up to 450mm*

	Small ~150	Medium 150~300	Large 300~450	Special 450~
C-type		90%		
X-type		85%		

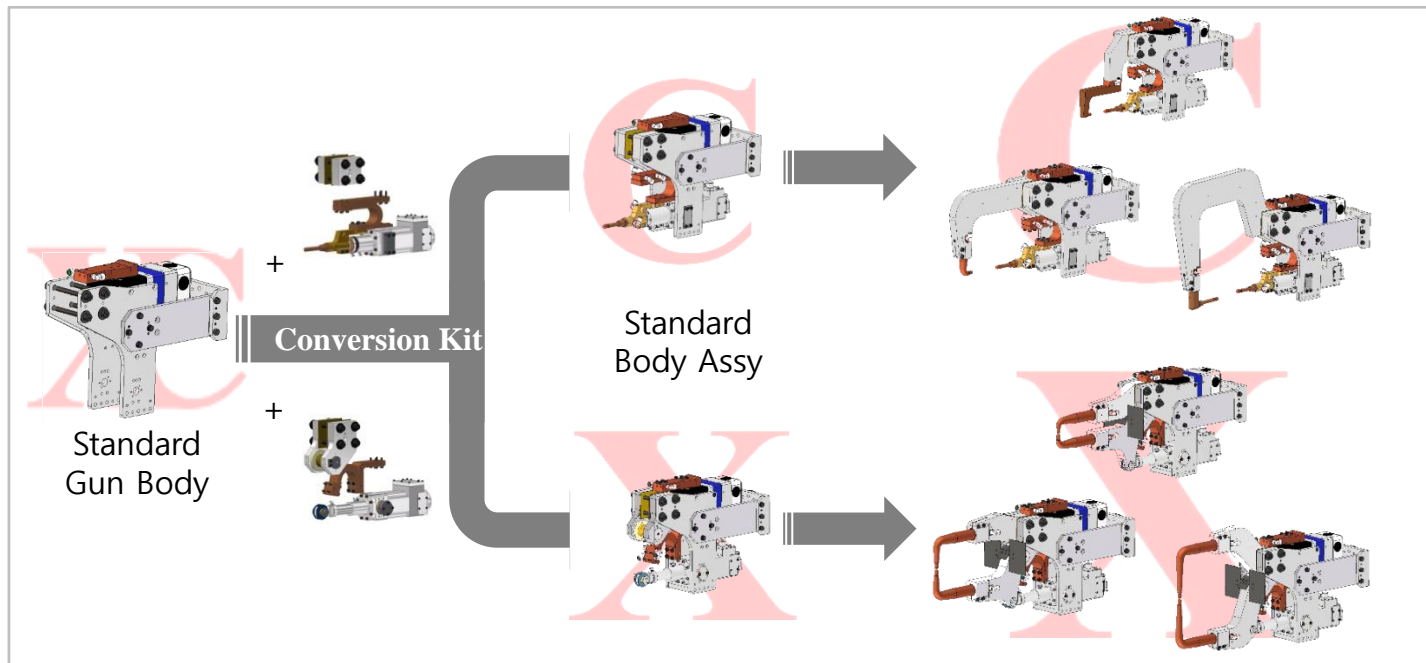
X2C 개념

모든 타입의 표준 바디 사용 (궁극적인 표준화)

- C type건과 X type건의 변환키트를 사용한 상호 호환가능

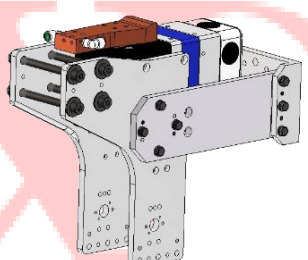
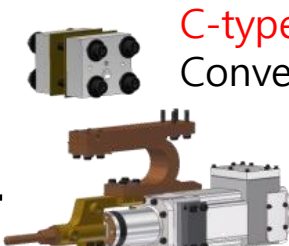
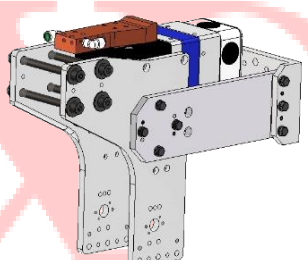
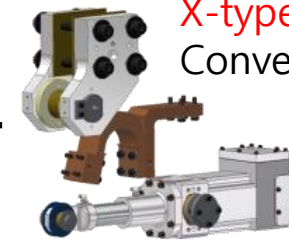
각 타입별 1개의 표준바디 사용

- 다양한 GUN ARM 설계를 통한 1개의 표준바디 사용
- 표준부품사용으로 인한 최소 스페어 구현



X2C Gun 기본구성

모든 타입의 적용되는 Standard Gun body

	Small ~150	Medium 150~300	Large 300~450	Special 450~
C-type	 Standard Body			 C-type Conversion Kit
X-type	 Standard Body			 X-type Conversion Kit

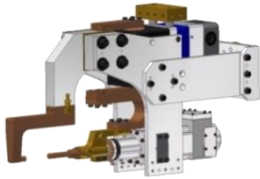
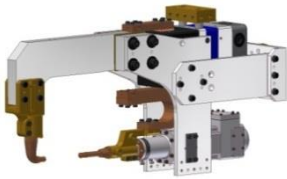
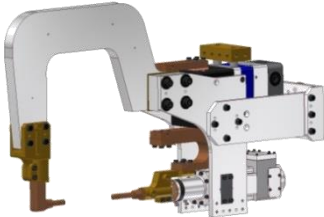


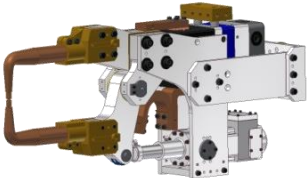
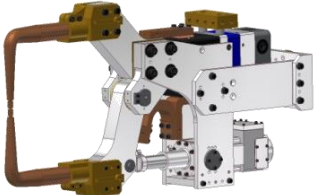
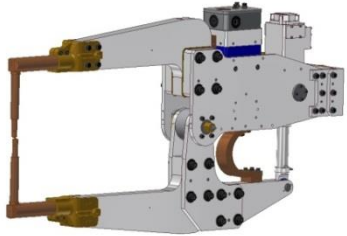
X2C Gun 기본구성

1개의 표준 body (C Type & X Type)

	Small	Medium	Large	Special
	~150	150~300	300~450	450~
C-type	<p>C-type Gun Body Assy</p>			
X-type	<p>X-type Gun Body Assy</p>			

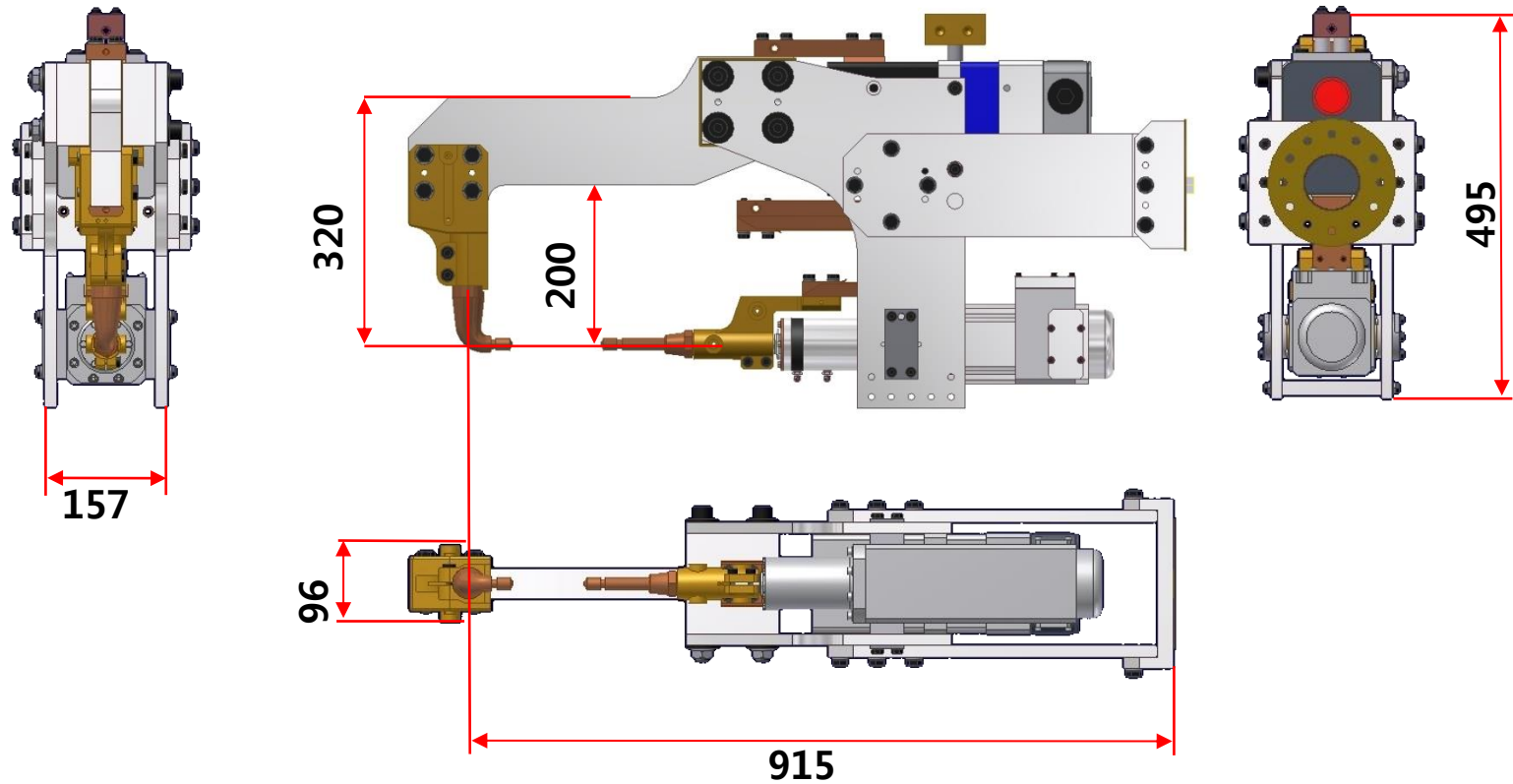
X2C Gun 기본구성

ARM 설계로 인한 사이즈 변화

	Small	Medium	Large	Special
C-type				
X-type				

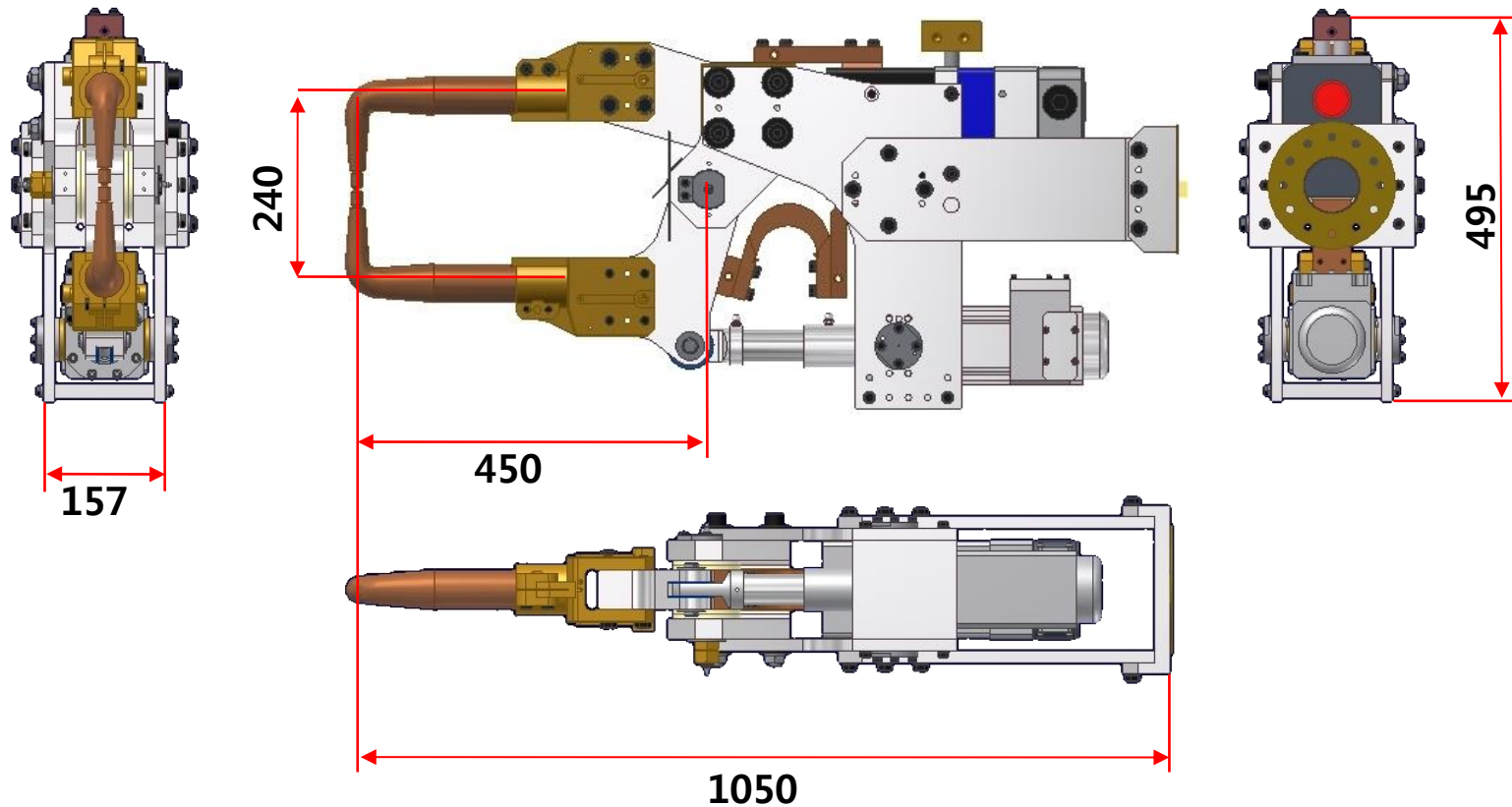
X2C Gun 크기

Medium Standard C-Type Gun



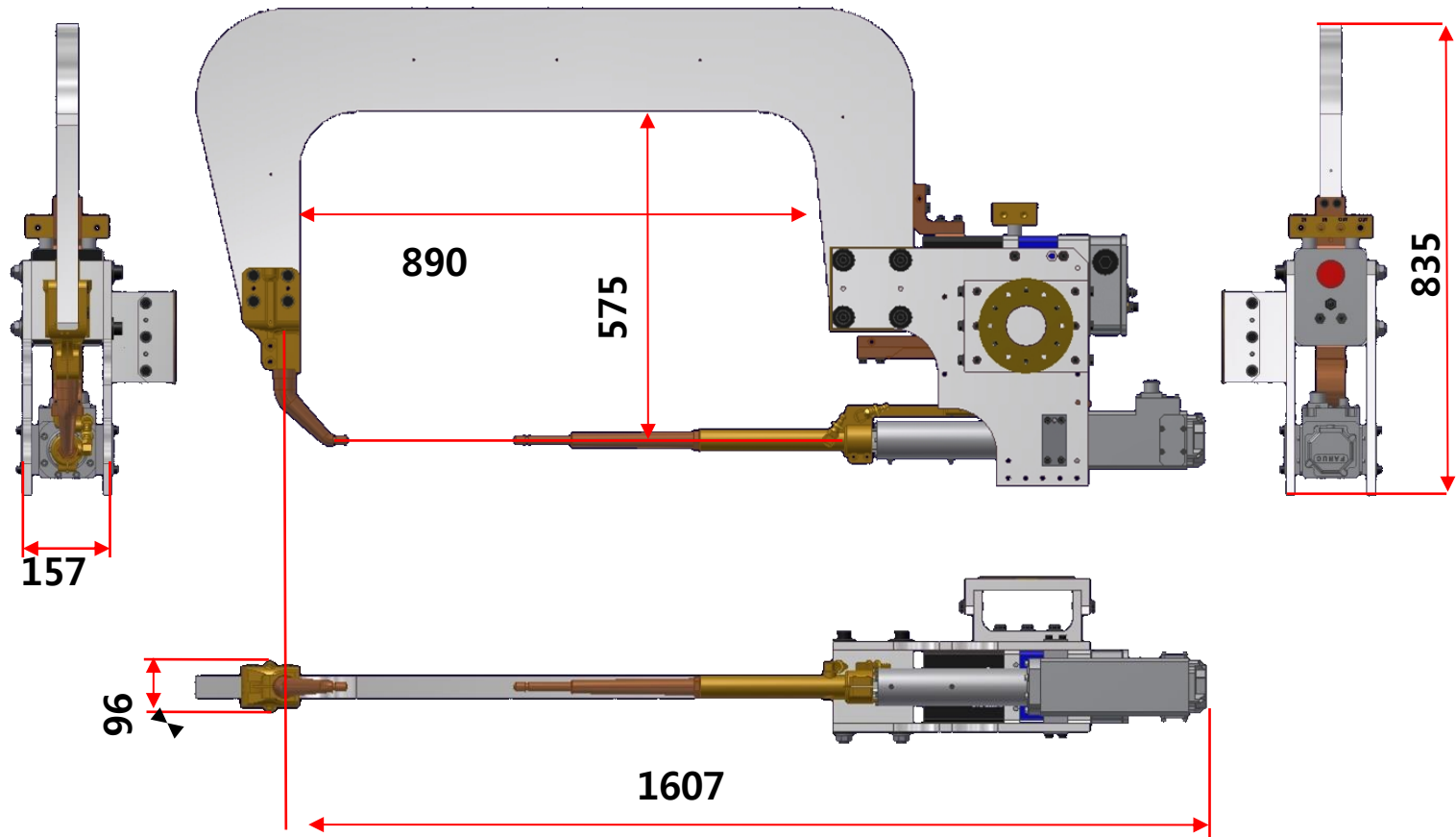
X2C Gun 크기

Medium Standard X-Type Gun



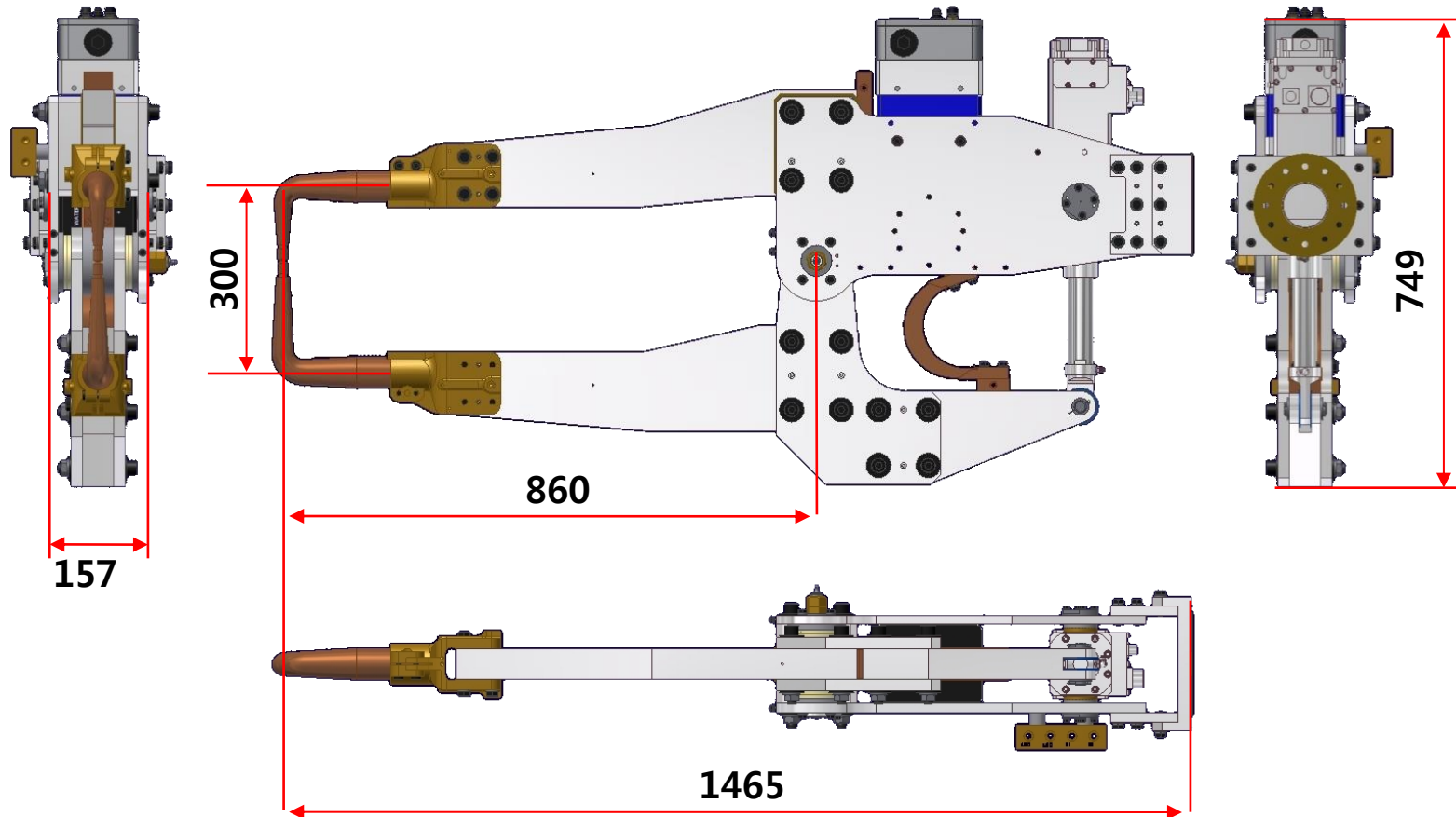
X2C Gun 크기

Extra-Large C-Type Gun





X2C Gun 크기

Extra-Large X-Type Gun



Inline Actuator

컴팩트한 디자인으로 인한 높은 성능 제공

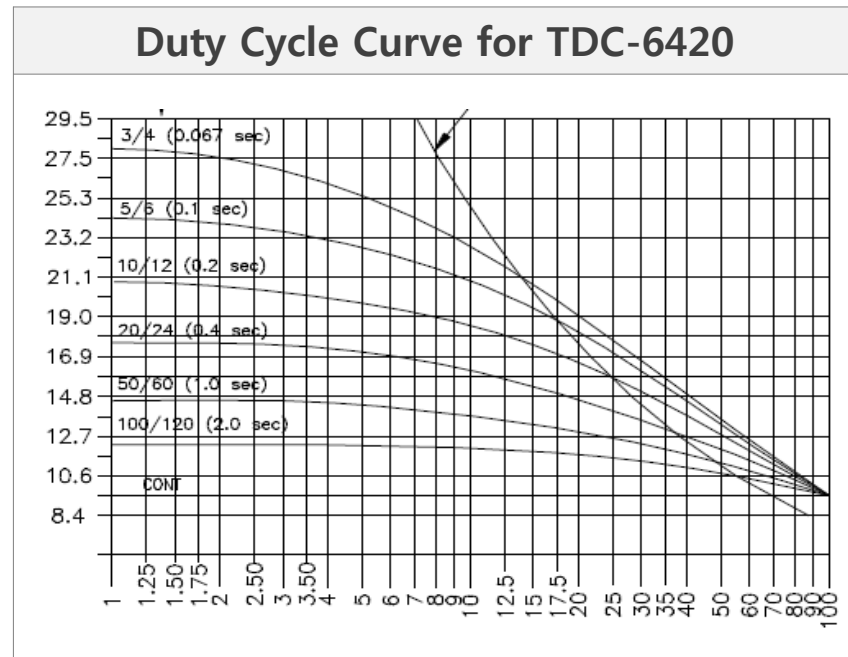
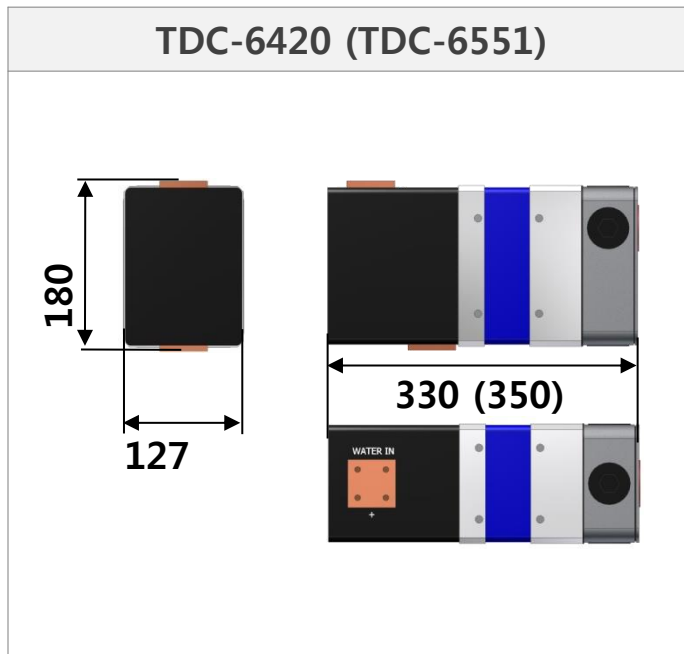
Type	C-type	X-type
2 C-type 1 X-type		
Max Stroke	210 (310) mm	160 mm
Length	458 (623) mm	479 mm
Width	100 mm (Symmetrical)	
Weight	13 (16) k g	13 kg

Tamagawa Motor	Spec
Rated Capacity	2 KW
Rated Torque	6.4 N·m
Instant Max Torque	19.1 N·m
Rated Rotating Speed	3000 rpm
Max Rotating Speed	4500 rpm
Insulation Class	F Class
Instant Max Elect Current	36A (rms)
Brake Voltage	24 V

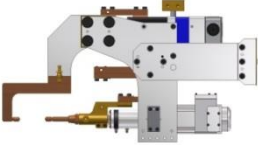
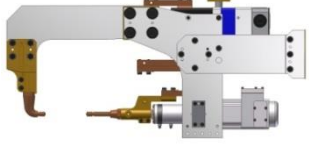
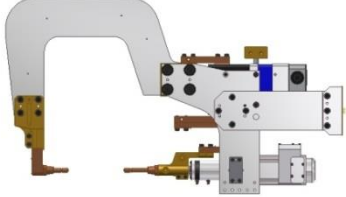
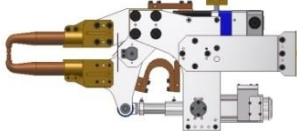
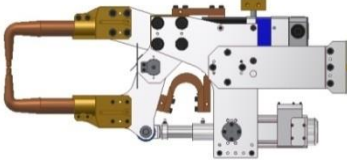
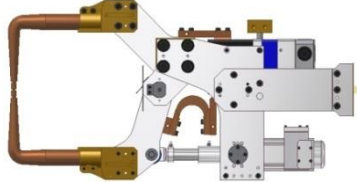
Lightweight Transformer

X2C시리즈 SV Gun 전용

P/N	Rated Capacity (50% D.C)	Rated Primary Voltage	Frequency	Secondary Voltage	Turn Ratio	Weight	Cooling water
TDC-6420	100KVA	650V	1000 Hz	9.8V	66	20.0 kg	7.5 L
TDC-6551	150KVA	650V	1000 Hz	13.0V	50	23.2 kg	7.5 L

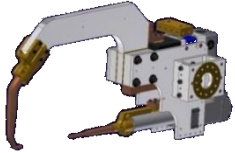
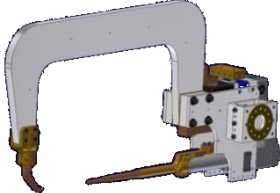
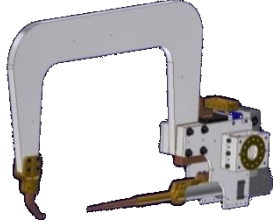
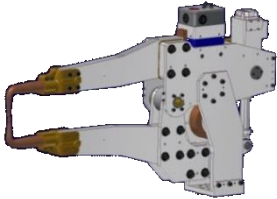
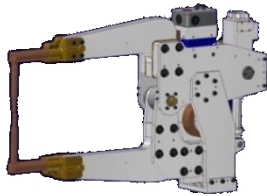
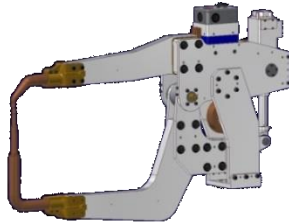


Standard X2C Gun 스펙

		
72 kg	77 kg	84 kg
Small	Medium	Large
91 kg	92 kg	95 kg
		
Type	C-type	X-type
Force	6000N	
Stroke	Up to 190mm	Up to 170mm
Transformer	Std: 1000Hz / 100Kva	
Size (H x D)	Up to 450mm x 500mm*	Up to 420mm x 450mm*

* Max. Size at 6000N Force

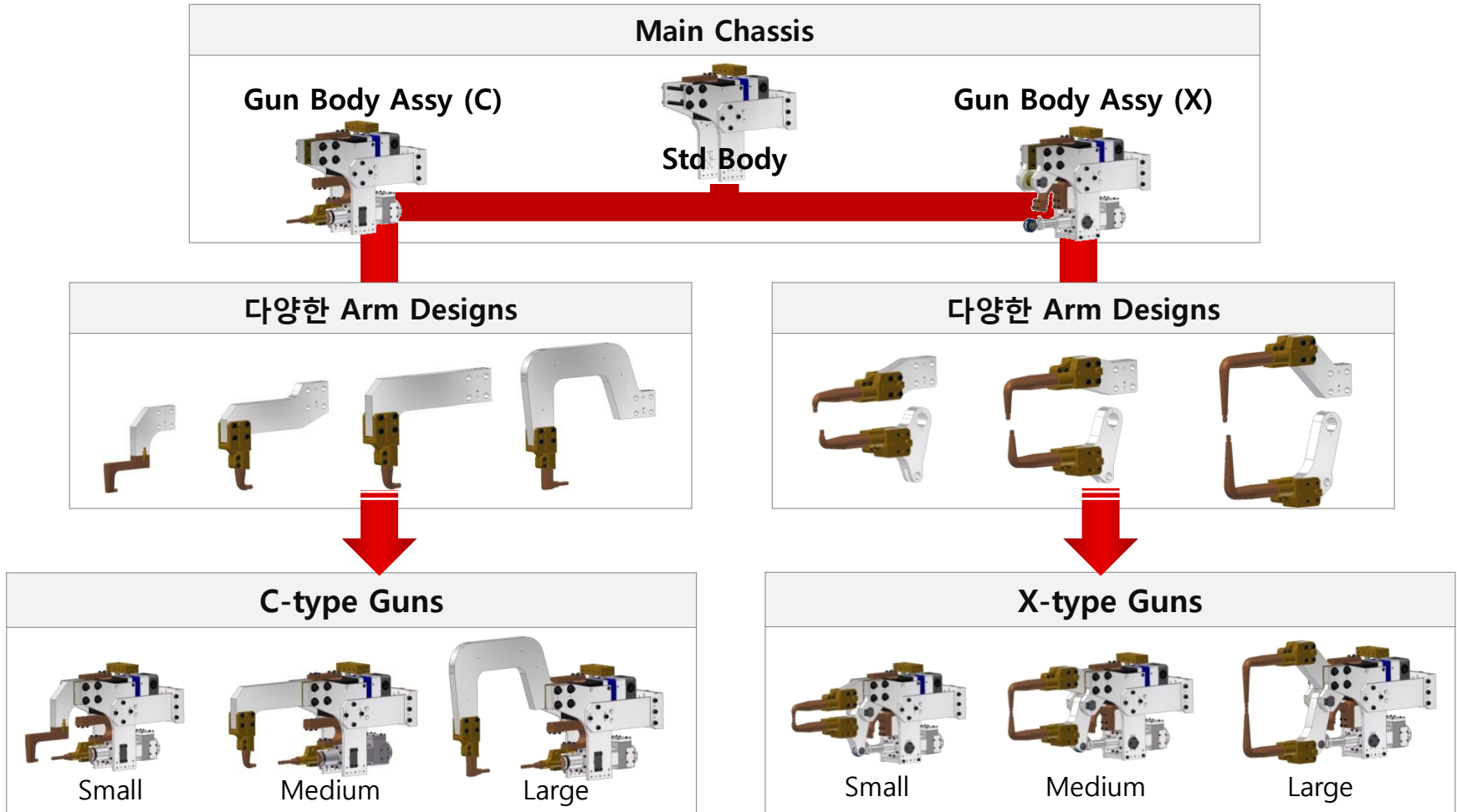
Extra-large X2C Gun 스펙

		
94 kg	117 kg	132 kg
Small	Medium	Large
136 kg	141 kg	148 kg
		
Type	C-type	X-type
Force	6000N*	
Stroke	Up to 290 mm	Up to 300 mm
Transformer	Std: 1000Hz / 100Kva	
Size (H x D)	Up to 900 mm x 900 mm*	Up to 1000 mm x 950 mm*

* Max. Size at 6000N Force

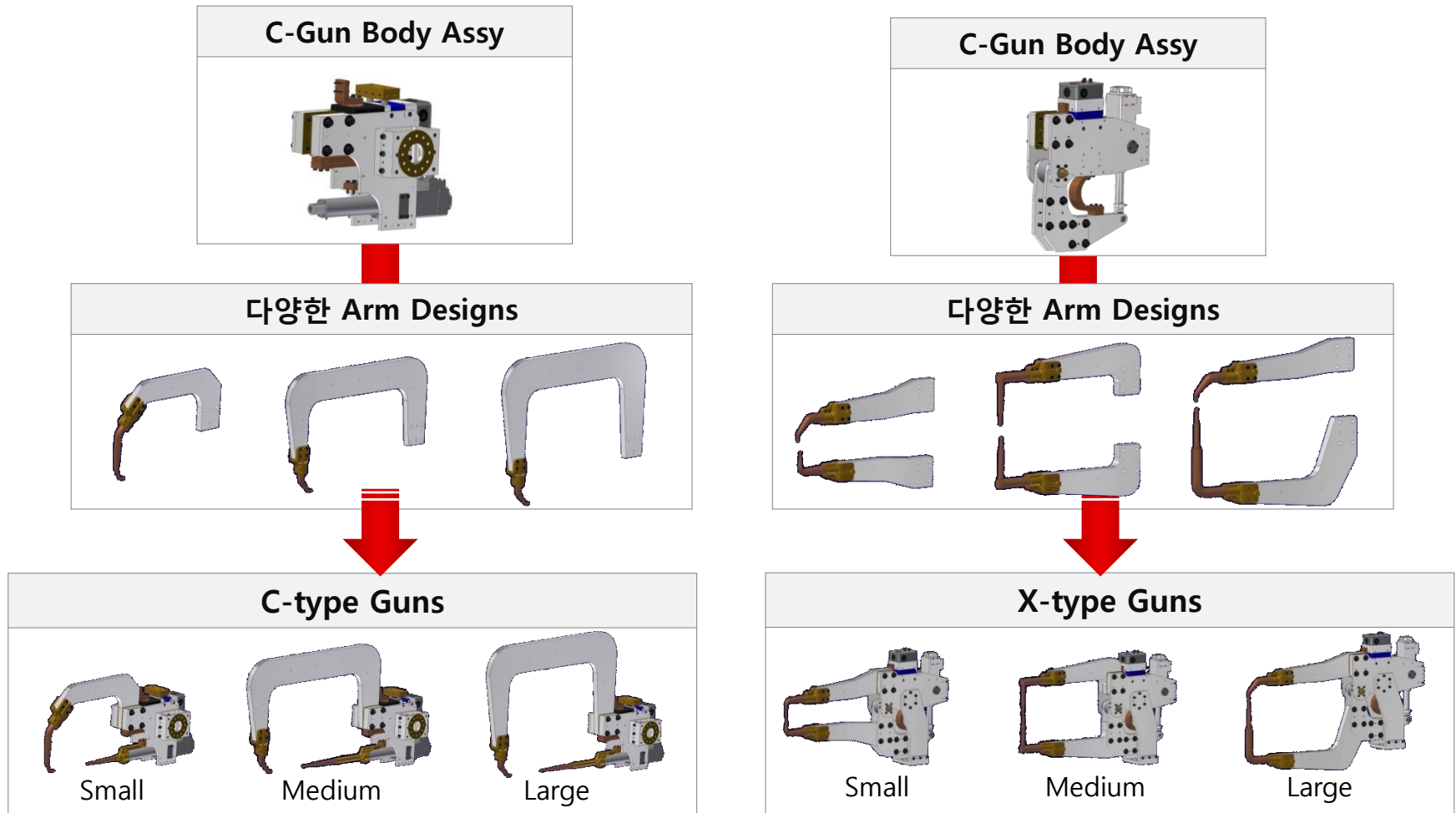
Standard X2C Gun 구성

Standard Main Chassis + Arm configurations



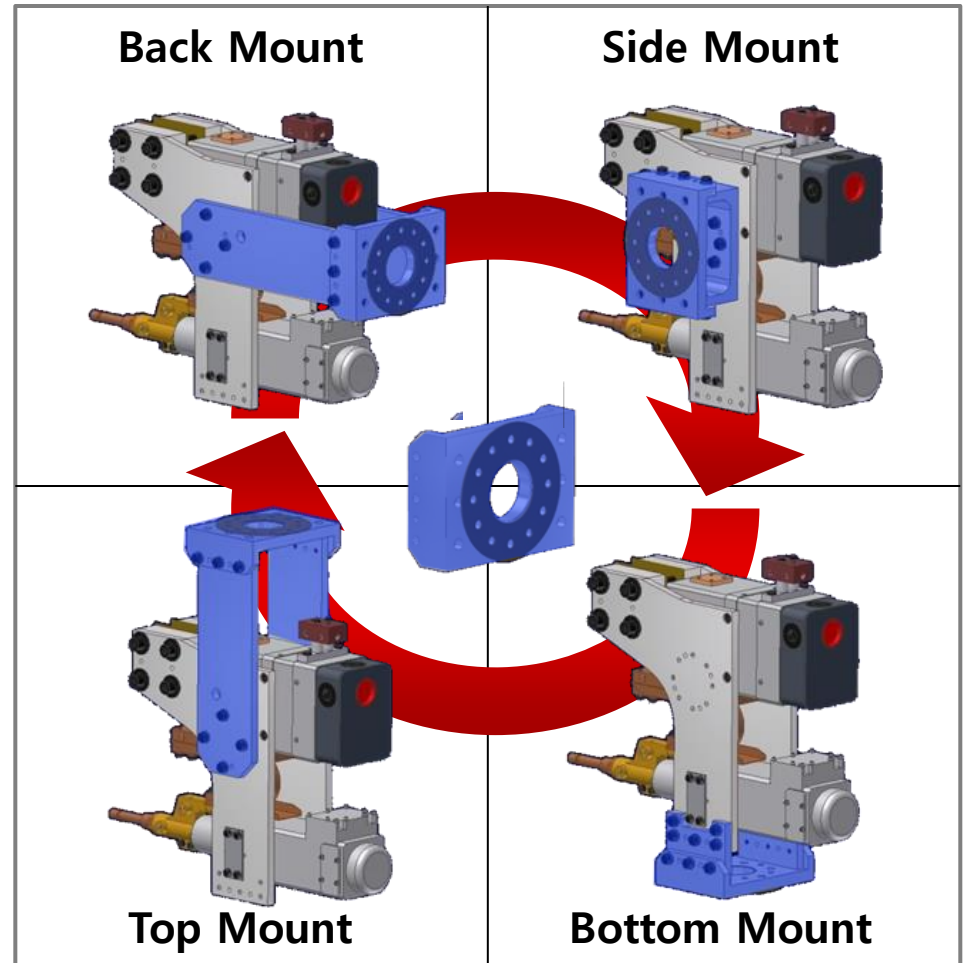
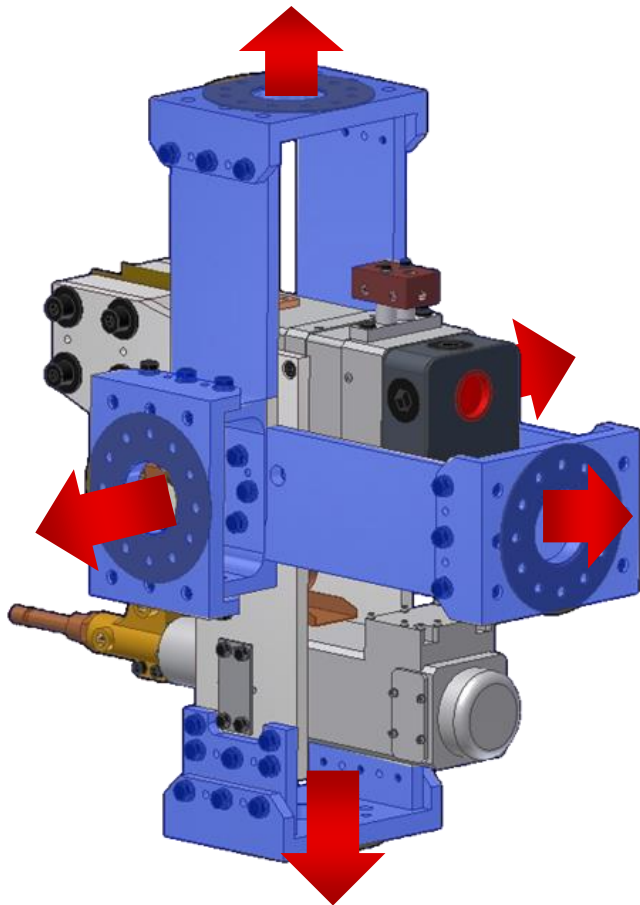
Extra-large X2C Gun 구성

Single Gun Body Assys (C&X) + Arm configurations



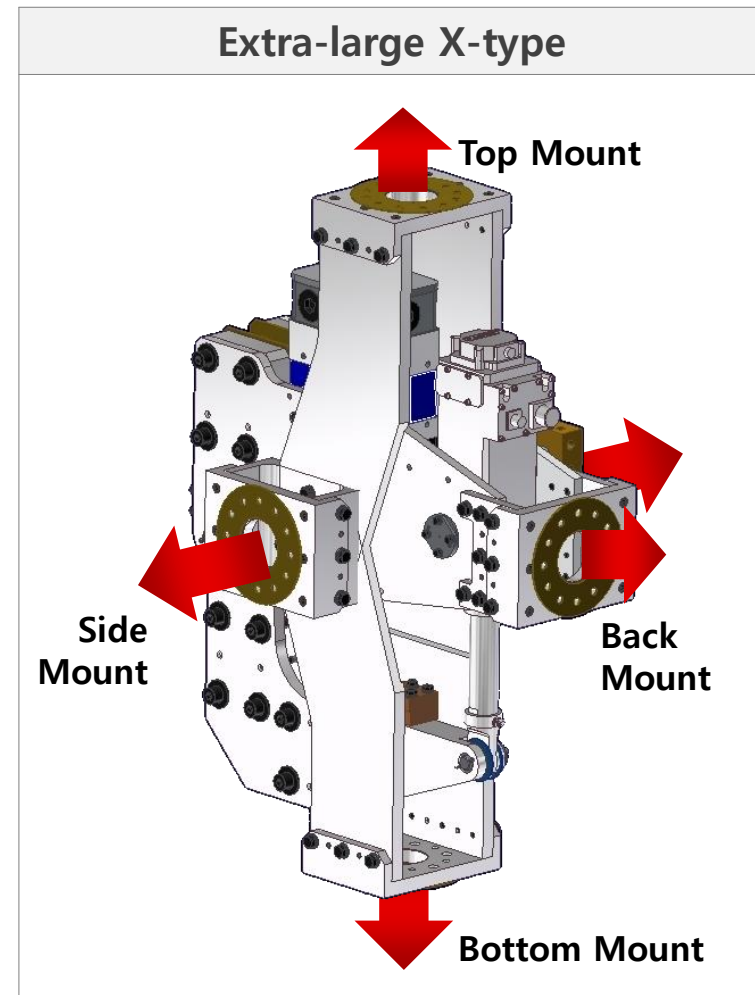
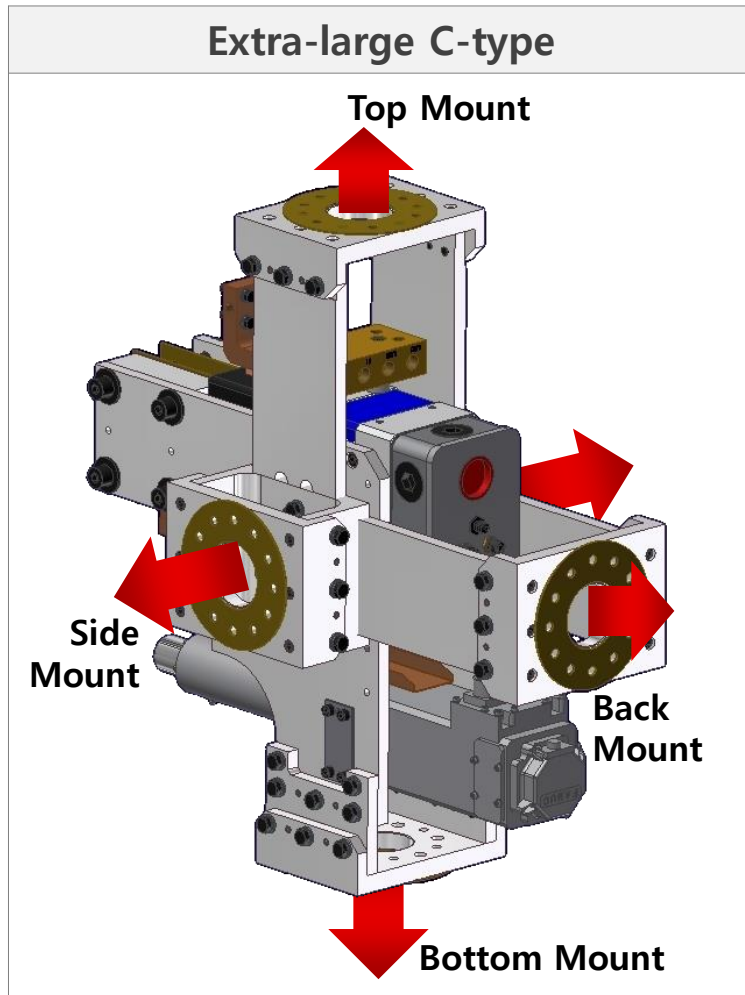
Standard X2C Gun Bracket 구성

C and X types



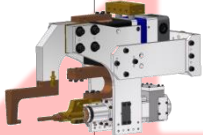

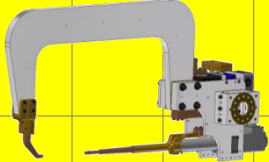
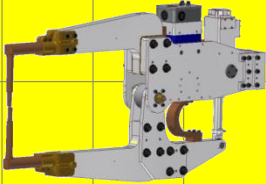
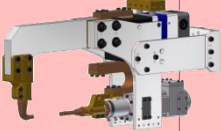

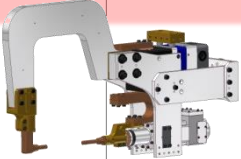
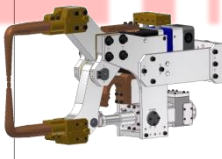
Extra-large X2C Gun Bracket 구성

All directions even with Extra-large guns



X2C Gun 중량 범위

All directions even with Extra-large guns

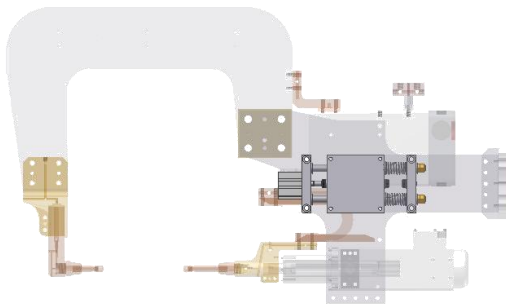
X2C GUN 중량 범위						
	~60kg	70kg	80kg	90kg	100kg	~160kg
Small (~150)					 	
Medium (~350)						
Large (~450)						

Ideal Payload Capacity

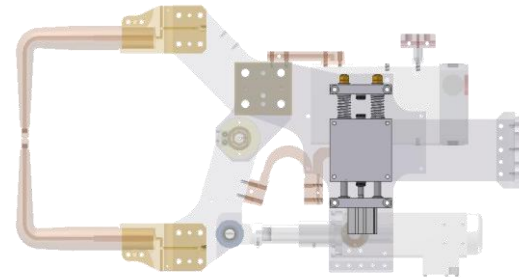
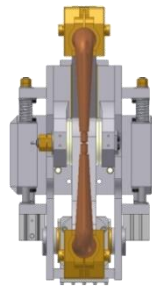


Equalizing Option

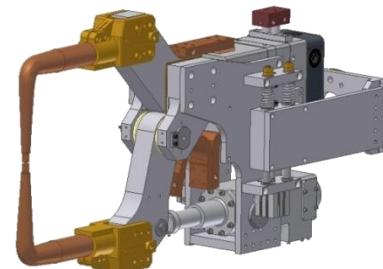
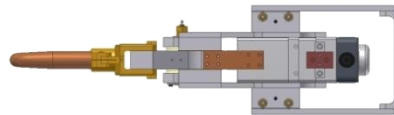
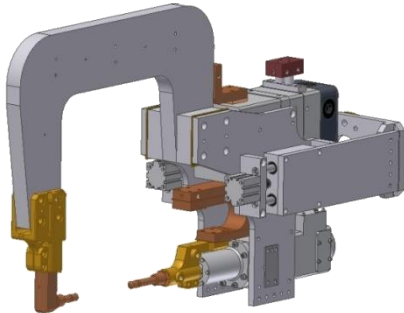
- 추가 기능 - 표준 차체에 단순히 볼트로 장착됨
- 유니버설 디자인 - C&X의 동일 유닛
- 공기 평형 - 동일 실린더+밸브



C-type Gun with EQ



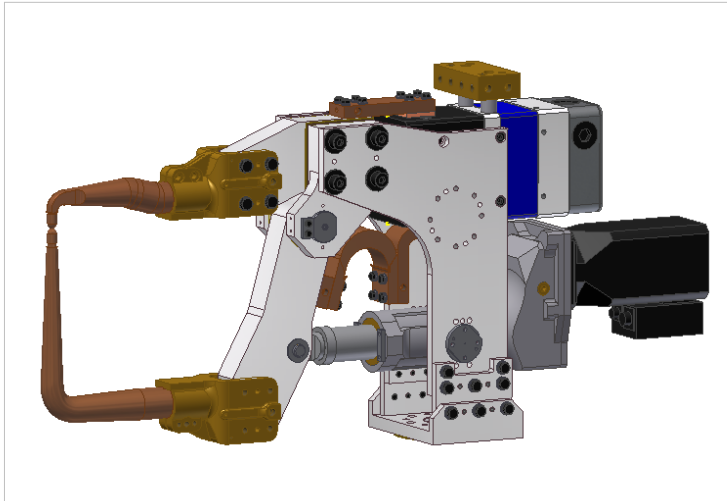
X-type Gun with EQ



Other Variations

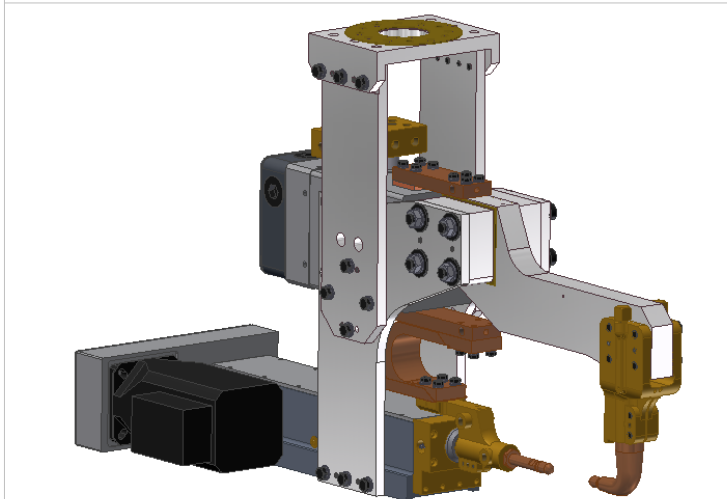
		
<p>Y-Type Gun (하단 이동형)</p>	<p>Y-Type Gun (상부 이동형)</p>	<p>X-Type Gun (trans 수직 이동형)</p>

Other Variations



X-type gear case assy is completely interchangeable with the standard inline actuator.

X-type의 gear case assy는 표준 inline actuator와 호환가능.



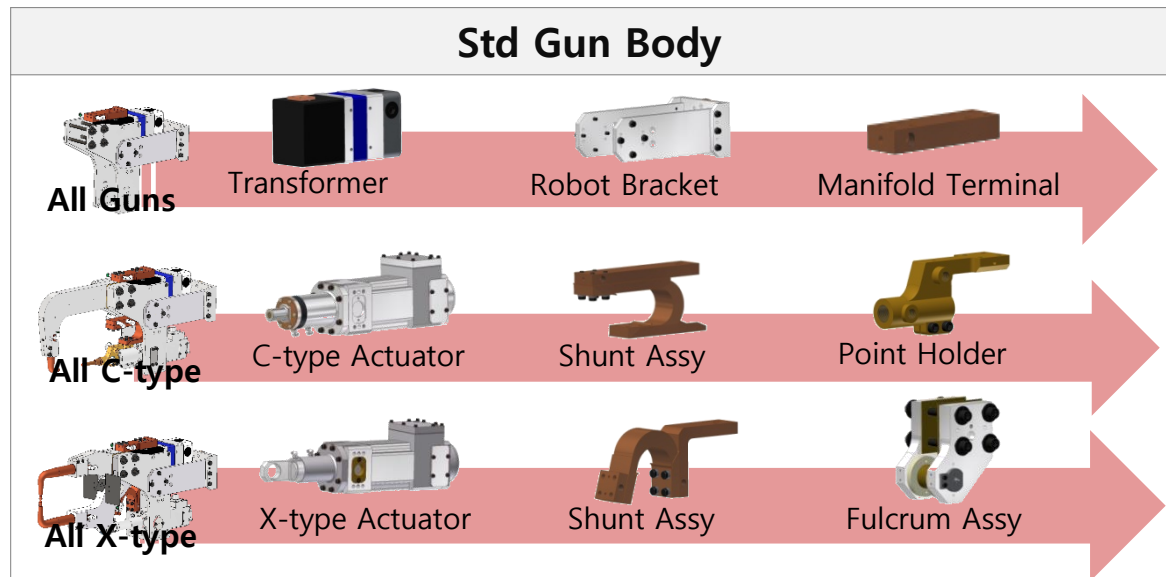
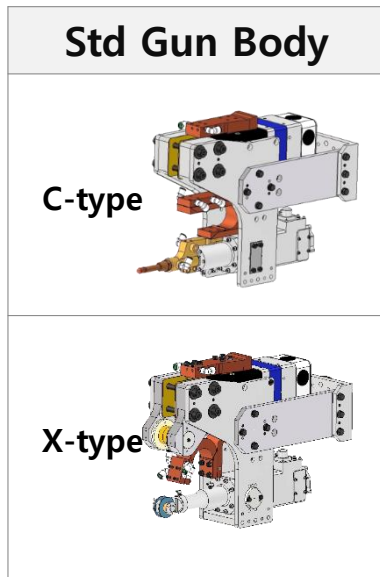
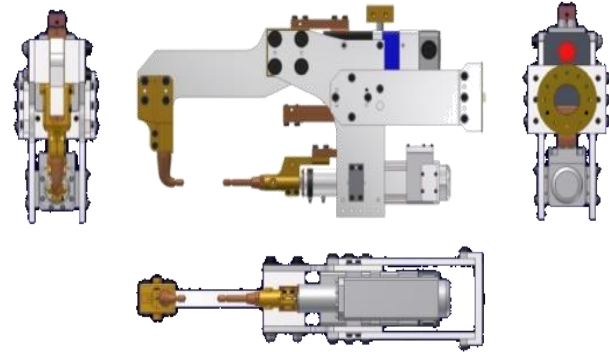
C-type gear case assy uses special main body side plates with thru holes instead of the standard threaded mounting holes. The same water jet cut-out can be used.

C-type gear case assy는 표준 나사산 장착 구멍 대신에 구멍이 있는 특수 본체 측면 플레이트를 사용 동일한 워터 제트 커팅을 사용할 수 있음

직접적인 혜택

표준화 설계

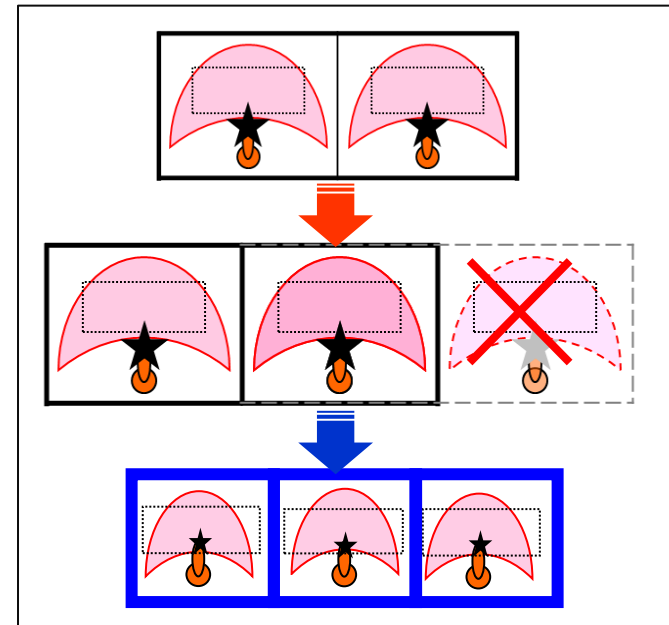
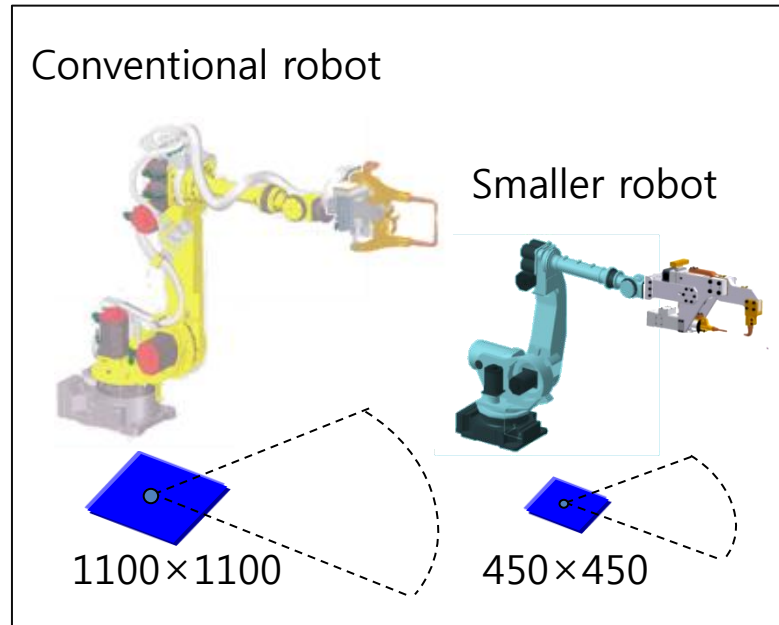
- Standard Gun Body
- 공용 Spare parts
- LH, RH 구분없는 디자인
- In-line Actuator Standard
- 보전성 강화



간접적인 혜택

공간절감 개념의 효과

- 소형로봇 사용가능
- 복합 설치에 적합
- 용접셀의 수량 증가 가능
- 생산라인의 길이 축소 가능
- TACT TIME 단축 가능



컨셉 요약

소형로봇에 적합

- 경량 및 소형 Actuator

소형용접셀에 적합

- 방향 구분없는 설계 및 폭이 좁은 Body 사용

로봇스피드 향상가능

- 경량설계로 인한 로봇 스트레스 절감으로 속도 증가
- 3G(중력)에 대한 스트레스도 설계 반영

