DAIHEN INC.

Almega Friendly series II

Ultra-Low-Spatter Technology

Synchro-feed robotic welding system

Synchro-feed Evolution

New Evolutionary Welding Mode

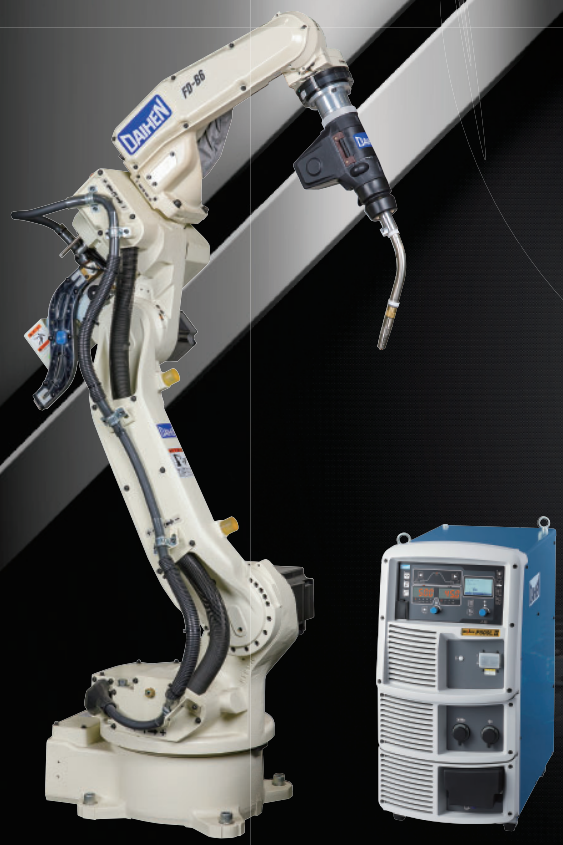
delivering

Ultra-low Spatter,

High Quality Weld Results

Simple Setup *with*

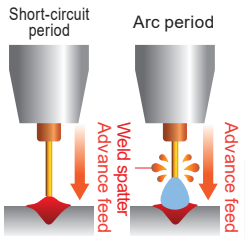
Reduced Maintenance Requirements



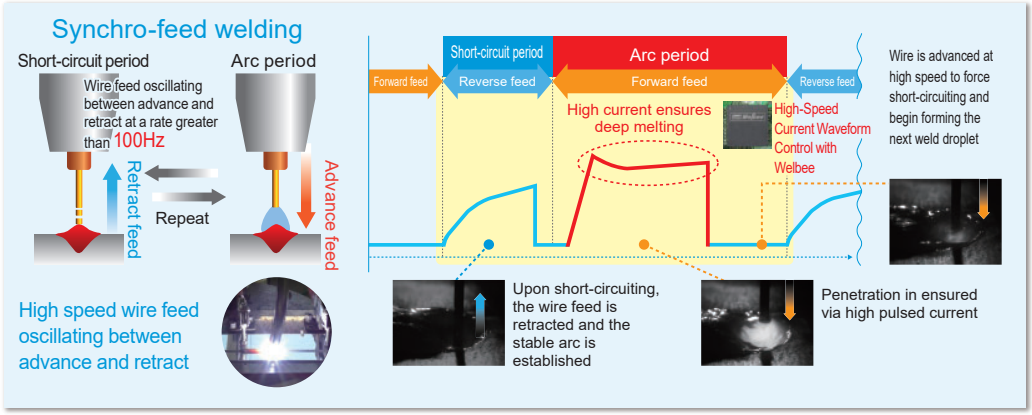
New Evolutionary Welding Mode
Delivering Ultra-low Spatter, High Quality Weld Results

■ Synchro-feed welding process

High pulsed current ensures penetration.

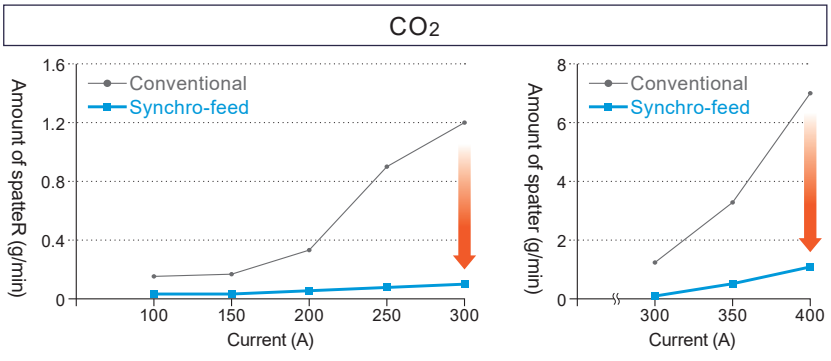


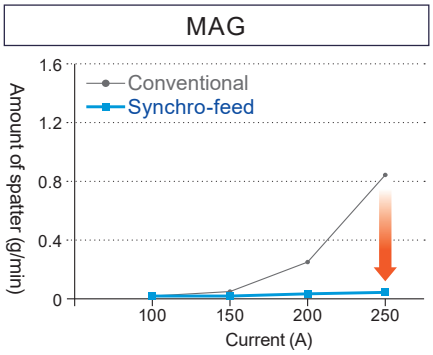
Push wire feeder is always advancing



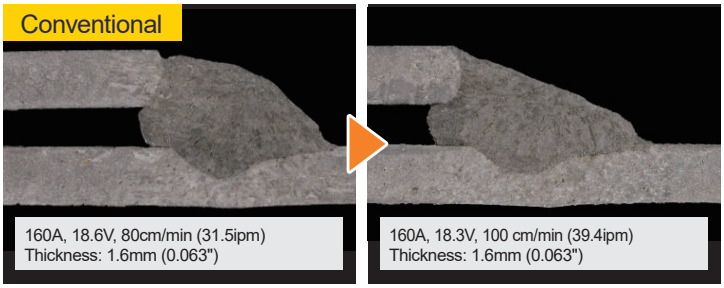
■ Synchro-feed virtually eliminates welding spatter!

Ultra-low welding spatter (99% reduction), even at weld current in excess of 400A



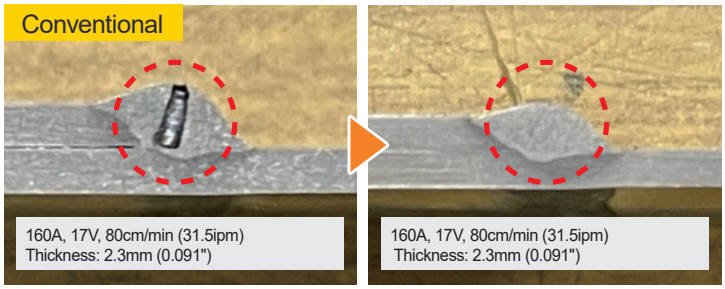


Mild steel



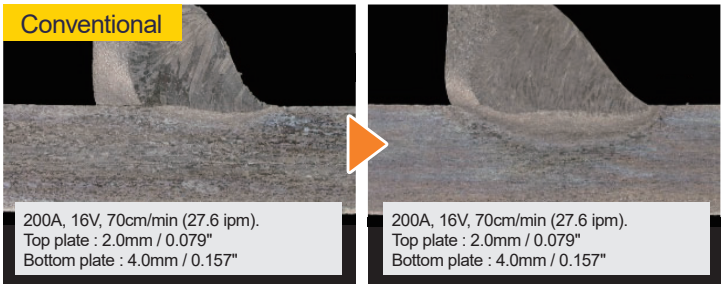
Wide bead to accommodate joint gap variance

Galvanized



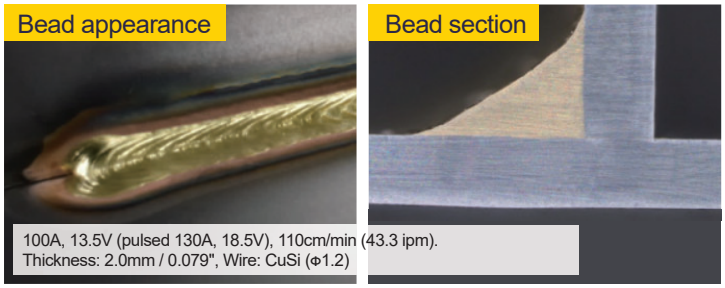
The push-out effect of the molten pool promotes easy release of zinc vapor to suppress blowholes.

Stainless steel



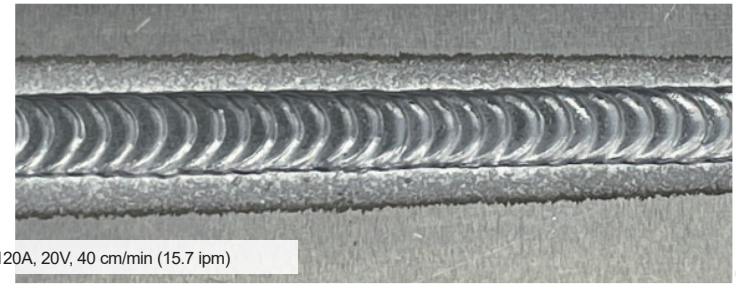
Bead with wide leg length and reduced throat thickness

Brazing



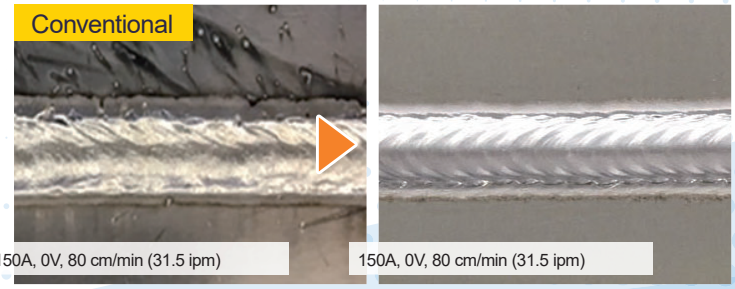
Wide range of weld beads and suppression of base metal penetration

Aluminum Soft



Bead apperance

Aluminum Hard



Very low heat input and less weld smut for high-quality weld results.

■Applications

Automobiles

- Bumper crash box (Aluminum)

Problem: Wrong thickness, melt-off

Solution: Synchro-feed pulse

Adjusting the ratio between Synchro-feed and pulse welding for fine control of heat input

- Suspension Lower Arm (Galvanized Steel Sheets)

Problem: Joint gap / target shift margin, Spatter, blowhole, multiple welds

Solution: Push arc (wide bead)

Push arc enables wide bead, low spatter, and zinc vapor discharge.
Predictive control maintains low spatter performance even in simultaneous welding by multiple units.

- Seat frame (high-tensile steel)

Problem: Ultra-thin plate welding (0.6mm / 0.024") joint gap variance and targeting misalignment

Solution: Push arc (Wide bead)

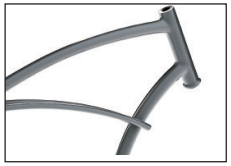
Synchro-feed eliminates burn-through on ultra-thin material.
Reducing spatter adhesion and weld contamination through ultra-low spatter performance of Synchro-feed.

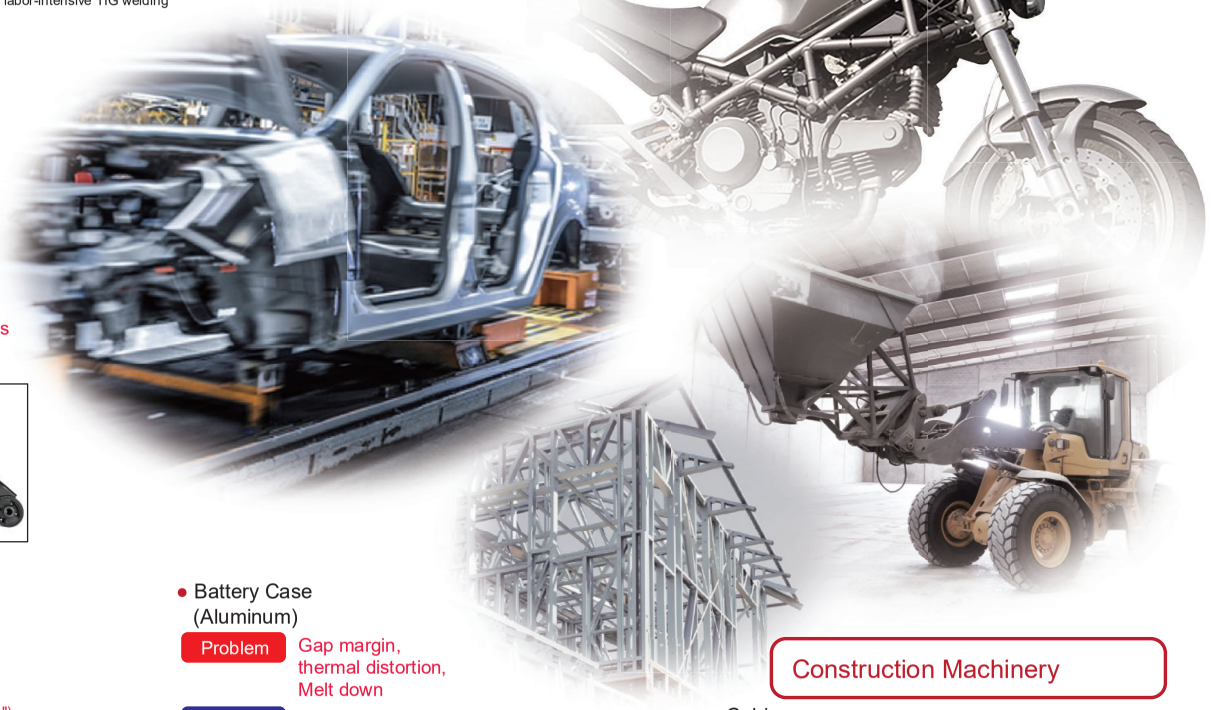
- Pipe frame (Auminum)

Problem: Bead appearance

Solution: Stitch pulse welding TIG-like bead formation

TIG-like, stacked bead appearance by stitch pulse welding mode
High-production alternative to slow and labor-intensive TIG welding



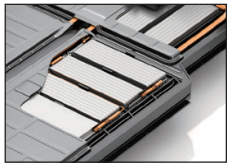


- Battery Case (Aluminum)

Problem: Gap margin, thermal distortion, Melt down

Solution: Push arc (wide bead)

Wide bead with Push arc to tolerate joint gap variance.Low heat input welding is possible to suppress thermal distortion and melt drop.



Motorcycles and bicycles

Construction Machinery

- Cabin (Iron)

Problem: Prevention of spatter adhesion and insufficient penetration in medium-thick plate welding

Solution: Weld with 450A

High current, ultra-low spatter welding delivering deep penetraction with reduced weld spatter.

- Tank (Iron)

Problem: Misalignment tolerance

Solution: Push arc (wide bead)

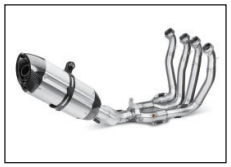
Ultra-low spatter achieved by Synchro-feed welding.
Push arc's wide bead better accomodates joint fit up variation

- Muffler exhaust manifold (Stainless steel)

Problem: Gap tolerance, wrong plate thickness

Solution: Push arc (wide bead)

Push arc's wide bead better accomodates joint fit up variation.
Also improves high-speed welding performance.



Other

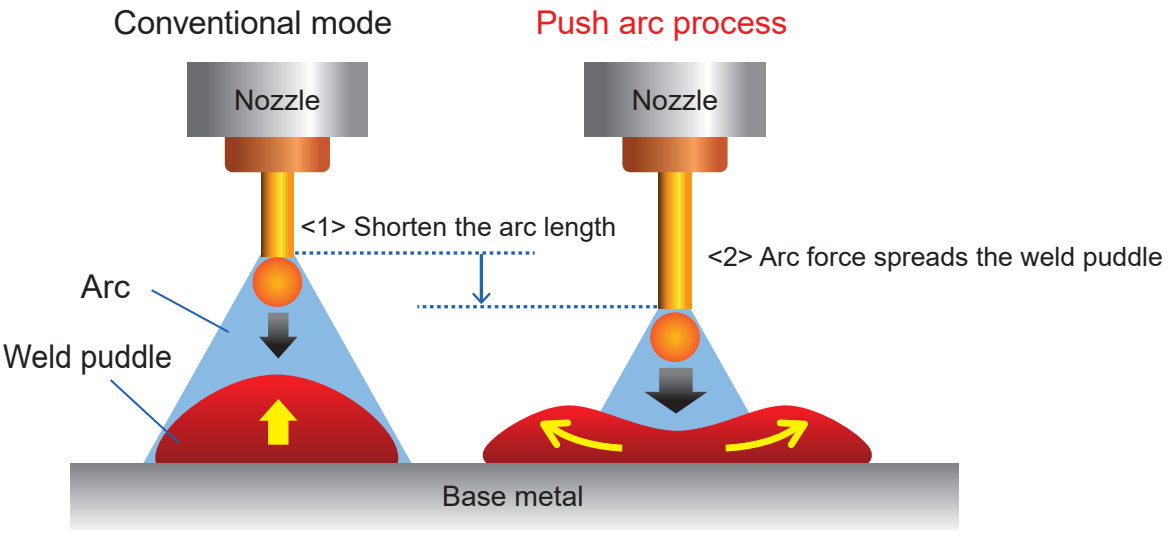
- Grating, Building Scaffolding, Ladder, Etc.

Contributes to improved welding quality by reducing spatter in many applications.

Compatible With Various Materials
Such As Mild Steel, Stainless Steel, Aluminum, Etc.

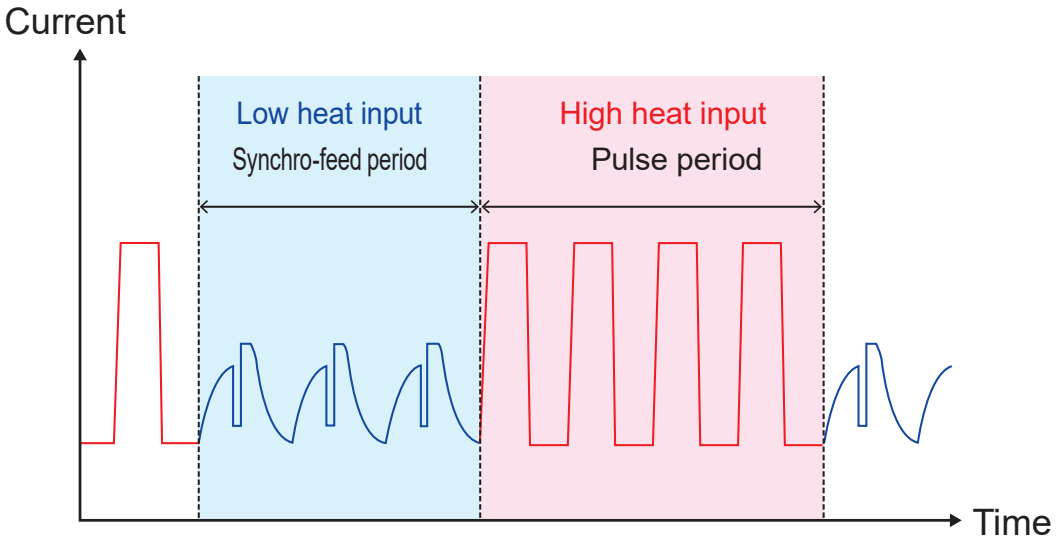
New Mode For Even Higher Quality Welding

Push arc process



Wide bead accomodates variation in joint fit up!

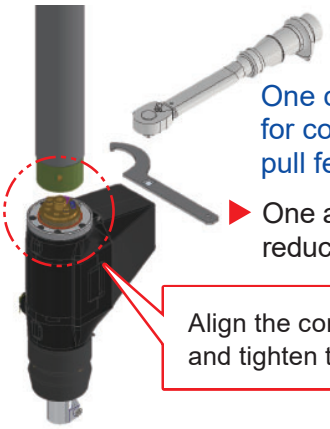
Synchro-feed pulse



Combining two types of welding waveforms to control head input!
Desirable weld bead appearance!

Simple Setup With Reduced Maintenance Requirements

■ Simple connection & configuration

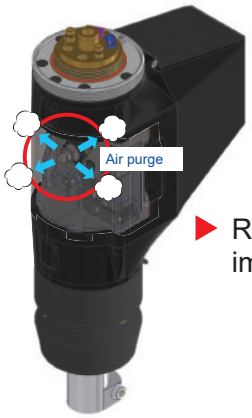


One cable and hose for connection to the pull feeder (Patent pending)

▶ One action connection reduces setup time

Align the connector and tighten the nut

■ Reduced maintenance



Includes auto-cleaning function to discharge wire shavings from the pull feeder mechanism

▶ Reduced cleaning time improve productivity

■ Applicable Range of Synchro-feed Evolution Welding System

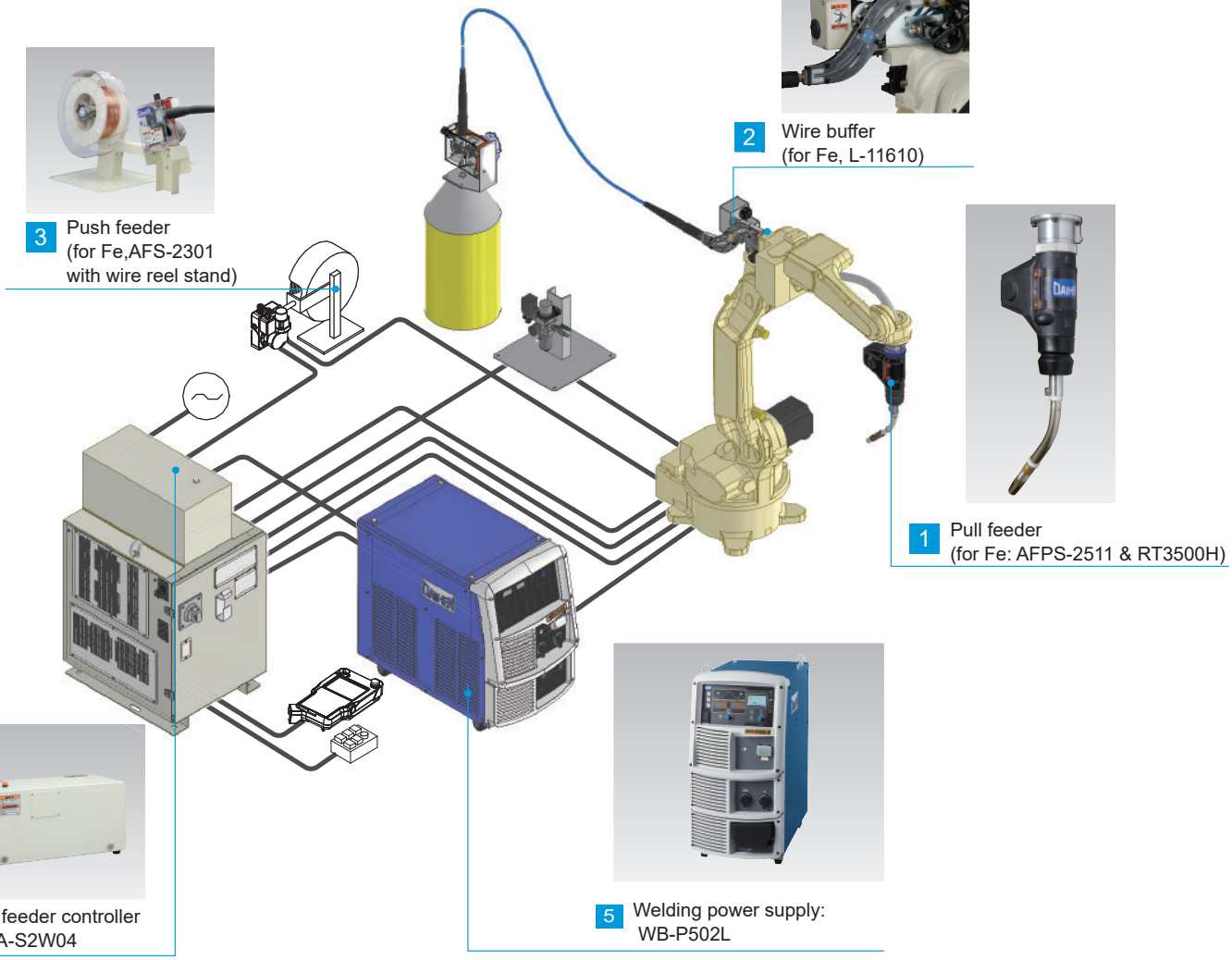
Material	Mild steel	Stainless (steelferrite/ austenite)	Aluminum
Shield gas	CO_2 / MAG	MIG(98%Ar,2%O_2)	MIG(100%Ar)
Applicable wire	0.8-1.2	1.0,1.2	1.2
Welding current(*1)	CO_2:50-400A	50-330A	40-300A
	MAG:50-350A		
Rated duty cycle(*2*3*4)	100%	100%	100%

*1 The maximum welding current varies depending on the wire diameter and material.
*2 The rating duty is for an ambient temperature of 45°C (113°F).
*3 For use at a rated duty ratio of 100%, air for cooling (50L/min, 13.2gpm) or more must be supplied.
*4 When WB-P502L welding power source is used

■ Components by Specification

Item		Synchro-feed Evolution	Synchro-feed Evolution Lite
Components		Wire buffer Pull feeder Push feeder	Pull feeder
Wire stock system	Reel wire	✓	✓
	Reel wire	✓	–
Applicable materials	Mild steel &stainless steel	✓	✓
	Aluminum / Brazing	✓	–
Welding power source		WB-P502L WB-W400	WB-P402L

System Components



2 Wire buffer
(for Fe, L-11610)

3 Push feeder
(for Fe,AFS-2301
with wire reel stand)

1 Pull feeder
(for Fe: AFPS-2511 & RT3500H)

4 Wire feeder controller
AFCA-S2W04

5 Welding power supply:
WB-P502L

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