

Technical Newsletter from
ADOR WELDING LIMITED
Formerly Advani - Oerlikon Ltd.

Product Update

CHAMP 135 / CHAMP 165
CHAMP 203 / CHAMP 253

Single / Three Phase Inverter
Based DC Welders

OPTIMIZING WELDING MACHINE UTILIZATION AND COST BY USING MECHANISED ATTACHMENT (COMBO MS 600) FOR GMAW / FCAW AND SAW PROCESSES

(Ideal for medium thickness structural / vessel fabrication jobs)

INTRODUCTION

Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW) processes are very common processes used for fabrication jobs. Most small and medium size fabrication and production shops use these processes. The Gas Tungsten Arc Welding (GTAW) and Submerged Arc Welding (SAW) processes are not as common and hence are not used in every welding fabrication shop. SAW processes are required to either increase the welding productivity on existing jobs or for odd jobs. When SAW welding is mandatory, then one has to invest in purchasing SAW welding equipments. Investing just to complete such odd jobs may lead to under utilization of the SAW Equipment. The power source characteristics required for welding equipments for GMAW and SAW welding processes are the same i.e. constant voltage (CV), hence it is possible to convert GMAW welding equipment for SAW process. In SAW process, flux is required to shield the arc instead of shielding gas used in GMAW welding process. Thus in such situation instead of purchasing a complete SAW equipment, if only tractor type motorized welding head with flux dispensing arrangement is procured, then this SAW welding head can be used for both SAW and GMAW welding processes (with the existing MIG power source of 600 amps) by mounting GMAW torch head on this tractor as illustrated in the pictures given on next pages.



- High frequency Insulated Gate Bipolar Transistor (IGBT) based Pulse-width Modulation (PWM) Inverter
- Arc Force adjustment on panel
- TIG Welding possible with Life Arc Technique
- Light Weight, Compact and portable for easy handling

ADOR WELDING LIMITED have developed the Mechanization attachment (Model " Combo MS 600) mounted on travel carriage for GMAW / FCAW (Flux-cored Arc Welding) / SAW welding (to be used with standard CO₂ welding machine) which is very useful and handy to complete above mentioned jobs without purchasing the new SAW welding outfit, consisting of power source and welding head. Thus the complete set up including mechanization attachment mentioned above, can be used for the combination of welding processes like GMAW, FCAW and SAW etc.

WHAT IS MECHANIZATION ATTACHMENT AND THE COMPLETE SYSTEM?

In this arrangement, existing MIG outfit with power source, wire feeder and torch is used. From this outfit, standard MIG welding torch is mounted on the travel carriage (customized SAW welding head) and the existing wire feeder is used for wire feeding purpose. Using this mechanized set up GMAW/FCAW welding can be done. The SAW can be done using the same mechanized set up by connecting flux hopper, flux hose and flux dispenser provided with the attachment.

User has the option to carry out normal semiautomatic CO₂ / MIG welding using MIG torch manually or mechanized GMAW / FCAW / SAW welding using the carriage on which above mentioned MIG torch is mounted. The operator/welder has to start shielding gas flow when he needs to use MIG process and use the flux (after stopping shielding gas flow) through flux hopper & dispenser when SAW process is to be used.

This mechanization arrangement thus enables the fabricator to carry out manual and semiautomatic GMAW and FCAW welding as well as mechanized GMAW / FCAW / SAW welding of pipes / plates from 7 mm to 20 mm thickness. In case user does not have the MIG or GMAW outfit, then he can also buy a complete new set up consisting of MIG power source, Wire feeder and Torch, apart from the mechanization attachment, Model : Combo MS 600. Thus the total scope of supply will be as follows.

SCOPE OF SUPPLY:

A. When MIG outfit is not available with the user

- **RANGER-600** consisting of Power source, Model: TCVR-600, Wire feeder, Model: **FEEDLITE-40(FE)** and welding torch, **MTG-600(E)** with standard accessories
- **Mechanized Attachment Model " Combo MS 600** consisting of customized SAW welding carriage trolley with manual horizontal and vertical slides, necessary brackets for mounting the torch, controller having

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controls for carriage drive, weld controls, wire feed controls, flux hopper with flux hose and flux dispenser, attachments for fillet welding, pointer assembly etc.

- A **Connection Box** for connecting RANGER 600 with the trolley assembly
- Necessary **Inter connection cables** for joining RANGER-600 to connection box and connection box to mechanized trolley

B. When MIG outfit is available with the user

- **Mechanized Attachment Model " Combo MS 600** consisting of customized SAW welding carriage trolley with manual horizontal and vertical slides, necessary brackets for mounting the torch, controller having controls for carriage drive, weld controls, wire feed controls, flux hopper with flux hose and flux dispenser, attachments for fillet welding, pointer assembly etc.
- A **Connection Box** for connecting RANGER 600 with the trolley assembly
- Necessary **Inter connection cables** for joining RANGER-600 to connection box and connection box to mechanized trolley



The entire set up and connection arrangements between the power source, connection box and the welding tractor head is shown in the photograph and connections between various components are illustrated below for easy understanding.



**Refresher Course in
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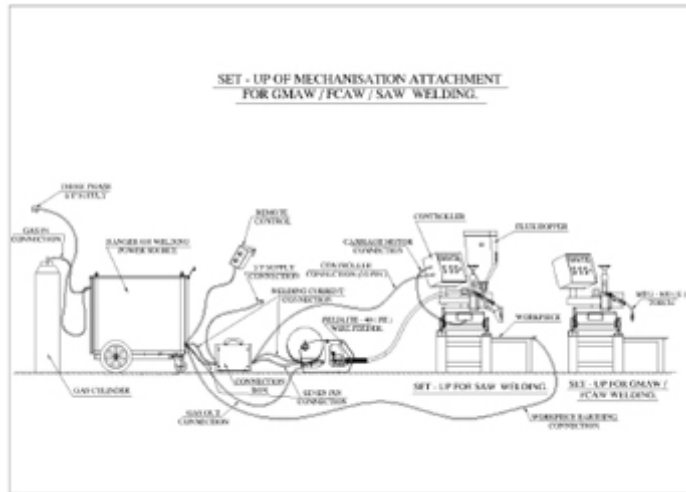
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& Qualifications (QA-2)
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TECHNICAL SPECIFICATIONS

Max. Welding current at	60 % duty cycle	A	600
	at 100% duty cycle	A	465
Wire diameter -		mm	1.2, 1.6, 2.0,
Speed range - Wirefeed		m/min.	1.2 to 18
- Carriage		m/min.	0.1 to 1.5
Input to controller		V 42V from connection box	
Range of adjustment	±€" Vertical (manual)	mm	140
Transverse to head travel	±€" Horizontal (manual)	mm	140
Max. swivel :			
-Transverse to head travel		Degree	45Â°
-Parallel to head travel		Degree	30Â°
-Horizontal open swing		Degree	270Â°
Weight of the spool (Max.)		Kg.	15
Flux hopper capacity		Kg./Ltr.	10/7
Dimensions: Length		mm	1100
Height		mm	810
Width		mm	760

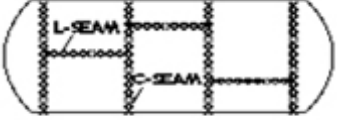
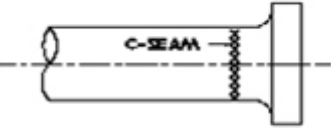
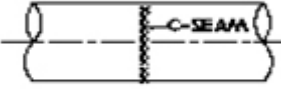

Total weight without flux and wire	Kg.	95
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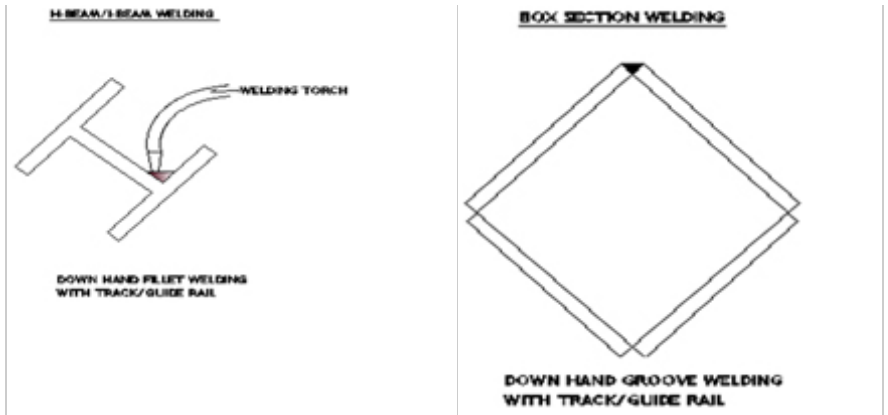
ADVANTAGES

This mechanization attachment offers following advantages for the user

- Optimum use of existing MIG welding machines
- Economical - Minimum investment since there is no need to buy complete SAW outfit
- Flexibility in machine utilization for GMAW/FCAW and SAW welding processes
- Increased welding productivity wherever possible, by using SAW welding process instead of GMAW or FCAW process
- Increase in welding productivity even in GMAW/FCAW welding process by using mechanized MIG torch travel instead of manual MIG torch travel used in semiautomatic GMAW / FCAW welding

SPECIFIC APPLICATION WHERE THIS MECHANIZATION CAN BE IDEALLY USED

<p>VESSEL FABRICATION</p>  <p>L-SEAM WELDING WITH TRACK C-SEAM WELDING WITH ROTATOR</p>	<p>PIPE TO FLANGE WELDING</p>  <p>C-SEAM WELDING WITH POSITIONER/ROTATOR</p>
<p>PIPE TO PIPE WELDING</p>  <p>C-SEAM WELDING WITH POSITIONER/ROTATOR</p>	<p>PLATE TO PLATE WELDING</p> 



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