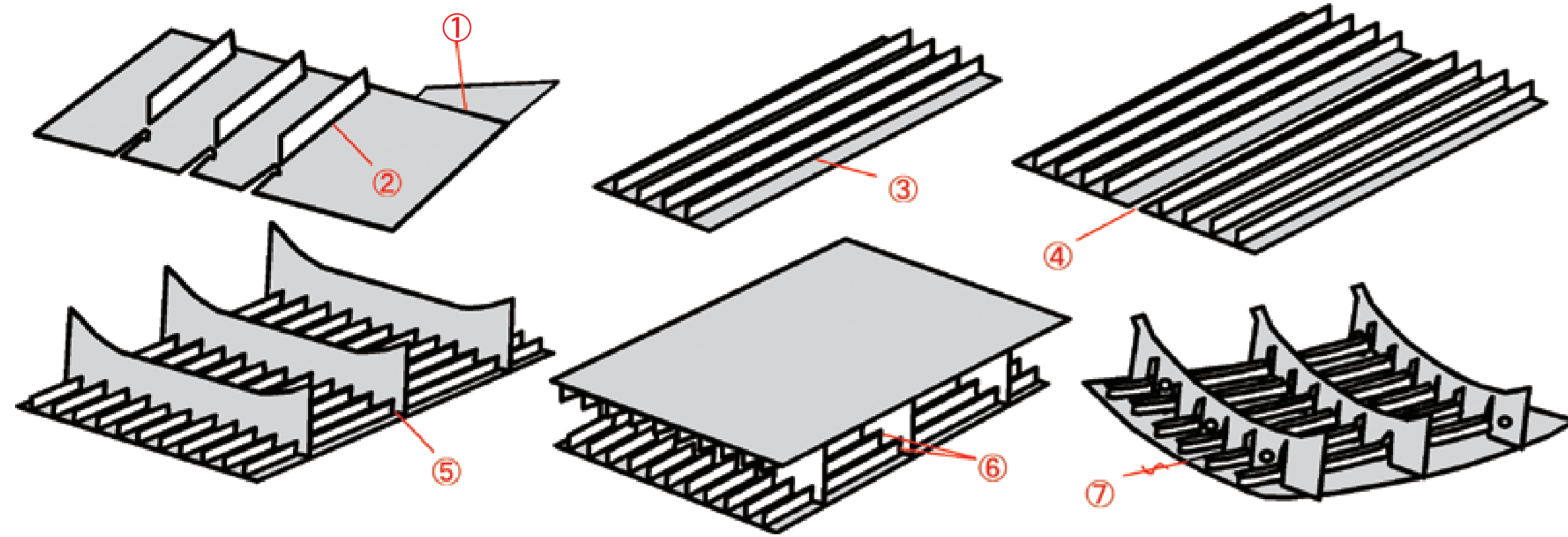


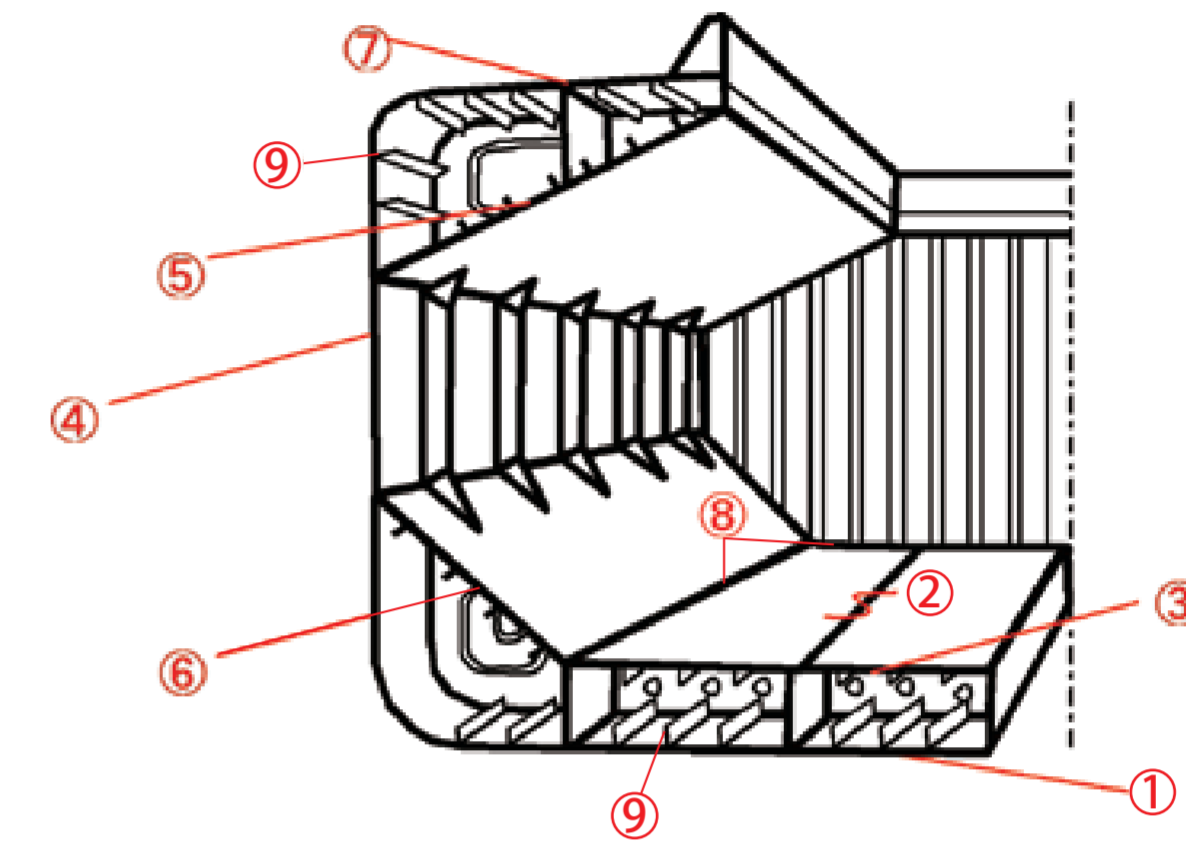
# Welding Consumables for Shipbuilding

## Typical welding process and consumable in assembly



No.	Production	Type of members and joints	Welding position	Welding process	Typical welding consumables		Remarks
					D grade	E grade	
①	Sub-Assembly	Flat panel/butt	Flat	Both side SAW	FAMILIARC US-36/ FAMILIARC PF-H55E		Automatic
②		Stiffener/Fillet	Horizontal	GMAW	FAMILIARC MX-200 FAMILIARC DW-200	FAMILIARC MX-200E FAMILIARC DW-200	Simple mechanical
③	Assembly	Longi./Fillet	Horizontal	GMAW	FAMILIARC MX-200 FAMILIARC MX-200H	FAMILIARC MX-200E FAMILIARC MX-200H	Multi-heads type mechanical
④		Panel plate/butt	Flat	One side SAW	FAMILIARC US-36/ FAMILIARC PF-I52E/ FAMILIARC PF-I50R		(FCB)
⑤		Slot·trans./Fillet	Horizontal Vertical	GMAW	FAMILIARC DW-100V	FAMILIARC DW-55E	Robotic
⑥		Inner double hull/Fillet	Horizontal Vertical	GMAW	FAMILIARC DW-100	FAMILIARC DW-55E	Semi-automatic
⑦		Bilge shell/butt	Flat	One side SAW One side GMAW	FAMILIARC US-36/ FAMILIARC PF-I52E/ FAMILIARC RR-2/ FAMILIARC FA-B1 FAMILIARC DW-100/ FAMILIARC FB-B3	FAMILIARC MX-200E FAMILIARC DW-200 FAMILIARC DW-55E/ FAMILIARC FB-B3	(FAB) Semi-automatic

## Typical welding process and consumable in erection (Bulk Carrier)



No.	Type of blocks and joints	Welding position	Welding Process	Typical welding consumables		Remark
				D grade	E grade	
①	Bottom shell/Butt	Flat	One side GMAW	FAMILIARC DW-100/ FAMILIARC FB-B3	FAMILIARC DW-55E/ FAMILIARC FB-B3	Semi-automatic
②	Tank top (Long.)/Butt	Flat	One side SAW One side GMAW	FAMILIARC US-36/ FAMILIARC PF-I52E/ FAMILIARC RR-2/ FAMILIARC FA-B1 FAMILIARC MG-50D/ FAMILIARC FB-B3	FAMILIARC MX-200E FAMILIARC DW-200	(FAB) Automatic(MAG)
③	Tank top (Trans.)/Butt	Flat	One side GMAW + SAW	FAMILIARC DW-100/ FAMILIARC FB-B3 FAMILIARC +US-36/ FAMILIARC PF-H55E	FAMILIARC DW-55E/ FAMILIARC FB-B3 FAMILIARC +US-36/ FAMILIARC PF-H55E	Semi-automatic + Automatic
④	Side shell/Butt	Vertical	Electrogas	FAMILIARC DW-S43G/ FAMILIARC KL-4, FAMILIARC DW-100V	FAMILIARC DW-S1LG/ FAMILIARC KL-4	Automatic (SEG) Semi-automatic
⑤	Top side tank/Butt	Flat	One side GMAW	FAMILIARC DW-100/ FAMILIARC FB-B3	FAMILIARC DW-55E/ FAMILIARC FB-B3	Semi-automatic
⑥	Bilge hopper/Butt	Horizontal Vertical	One side GMAW	FAMILIARC DW-100/ FAMILIARC FB-B3 FAMILIARC DW-100V/ FAMILIARC FB-B3	FAMILIARC DW-55E/ FAMILIARC FB-B3	Semi-automatic
⑦	Upper deck/Butt	Flat	One side GMAW + SAW	FAMILIARC DW-100/ FAMILIARC FB-B3 FAMILIARC +US-36/ FAMILIARC PF-H55E	FAMILIARC DW-55E/ FAMILIARC FB-B3 FAMILIARC +US-36/ FAMILIARC PF-H55E	Semi-automatic + Automatic
⑧	Tank top/Fillet	Horizontal	GMAW	FAMILIARC MX-200	FAMILIARC MX-200E	Simple mechanical
⑨	Long./Fillet	Flat Vertical	One side GMAW	FAMILIARC DW-100/ FAMILIARC FB-B3	FAMILIARC DW-55E/ FAMILIARC FB-B3	Semi-automatic