

## Classification

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22
T 23 7 N L R M/C 3	-	-

## Characteristics and typical fields of application

Avesta FCW-2D 2304 is primarily designed for welding the duplex stainless steel Outokumpu 2304® and similar grades. Thanks to the low molybdenum content, corrosion resistance in nitric acid containing environments is very good. The steel is mainly intended for applications such as chemical industry, civil engineering, storage tanks, containers etc.

Avesta FCW-2D 2304 provides excellent weldability in flat as well as horizontal-vertical position. Welding in vertical-up and overhead positions is preferably done using FCW 2304-PW.

Avesta FCW-2D 2304 should be welded using direct current positive polarity (DC+) with a recommended wire stick-out of 15 – 20 mm.

The weldability of duplex steels is excellent, but the welding should be adapted to the base material, considering fluidity, joint design, heat input etc. For detailed welding recommendations, please see "How to weld duplex stainless steels" or contact voestalpine Böhler Welding.

### Corrosion resistance:

Very good resistance to pitting and stress corrosion cracking in nitric acid environments.

## Base Materials

Outokumpu	EN	ASTM	BS	NF	SS
2304	1.4362	S32304	-	Z3 CN 23-04 Az	2327

## Typical analysis of all-weld metal (wt.-%)

	C	Si	Mn	Cr	Ni	Mo	N
wt-%	0.025	0.7	1.2	24.0	9.0	0.3	0.14

## Mechanical properties of all-weld metal

Heat-treatment	Yield strength R <sub>e</sub> N/mm <sup>2</sup>	Tensile strength R <sub>m</sub> N/mm <sup>2</sup>	Elongation (L <sub>0</sub> =5d <sub>0</sub> )	Impact work ISO-V KV J		Hardness
	MPa	MPa	%	+20 °C	-20 °C	
u	580	760	25	50	40	240

u untreated, as-welded – shielding gas Argon + 18 % CO<sub>2</sub>

## Operating data

	<b>Polarity</b> DC (+)	<b>shielding gases:</b> Ar + 15 – 25% CO <sub>2</sub> 100 % CO <sub>2</sub>	<b>re-drying if necessary:</b> 150°C / 24 hrs	<b>amps A</b> 125 – 280 200 - 350	<b>voltage V</b> 20 – 34 25 - 35	<b>ø (mm)</b> 1.2 1.6
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Ar + 15 – 25% CO<sub>2</sub> offers the best weldability, but 100% CO<sub>2</sub> can be also used (voltage should be increased by 2V). Gas flow rate 20 – 25 l/min.

## Approvals

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