

AVESTA 2D ELECTRODES

high productivity in the flat welding position



Welder-friendly, cost efficient electrode

Avesta 2D high-recovery electrodes can be used for various types of overlay welding. They are also a natural choice for welding horizontal-vertical welds and for flat butt and fillet joints. Avesta 2D electrodes deliver high productivity and first-class weld surfaces.

Avesta 2D



Avesta 2D high-recovery electrodes give a metal recovery of up to 150%. The deposition rate can be as much as 30% better than that of corresponding standard products.

Because weld beads are generally longer when using 2D electrodes, there is minimum starting and stopping. This improves both cost efficiency and quality.

The cost-efficient 2D electrodes are particularly suitable for welding heavier components in metal thicknesses 5 mm upwards. If, for different reasons, welding with other high-productivity methods is not possible, high-recovery electrodes may be an excellent alternative.

The weldability of 2D electrodes is very good, slag removal is easy and both the arc and the weld pool are stable and easy to control. Welding must be with a short arc and no weaving. To minimise dilution in overlay welding, small overlaps and the angling of the arc towards the preceding bead are essential.

There are Avesta 2D electrodes for welding: austenitic stainless steel (with or without molybdenum); duplex stainless steels; and, stainless steels to carbon steels.

Avesta 2D electrodes can be used for, amongst other things, the overlay welding of pipes, connection pieces, elbows and other components as well as for filler beads in horizontal butt and fillet joints.

Weld metal composition

Standard designations

Avesta 2D electrode	Chemical composition, typical values, %							Typical ferrit*	EN 1600	AWS A5.4
	C	Si	Mn	Cr	Ni	Mo	Other			
308L/MVR-HX 316L/SKR-HX	0.03 0.03	0.7 0.8	0.9 0.8	20.0 18.0	10.5 12.0	– 2.8	– –	10 8	E 19 9 L R E 19 12 3 L R	E308L-17 E316L-17
2205-HX P5-HX	0.03 0.03	0.8 0.8	0.7 1.0	22.5 22.0	9.5 13.5	3.0 2.7	N=0.15 –	30 20	E 22 9 3 N L R E 23 12 2 L R	E2209-17 E309MoL-17

* The ferrite content of pure weld metal. FN 0–18 as per Schaeffler-DeLong, FN >18 as per WRC-92.

Mechanical properties, typical values

Approvals

Avesta 2D electrode	Rp0.2 N/mm ²	Rm N/mm ²	A5 %	Impact strenght, KV, J		Brinell hardness	TÜV	DNV	CWB
				+20°C	Low temp.				
308L/MVR-HX 316L/SKR-HX	395 420	550 575	41 37	65 55	55 (–40°C) 55 (–40°C)	210 210	x x	x	x x
2205-HX	640	825	25	55	40 (–40°C)	240			
P5-HX	450	625	30	35	35 (–20°C)	200			

Choice of filler metals

EN	ASTM	Outokumpu steel designation	Recommended Avesta 2D electrode
1.4301 1.4307 1.4311 1.4541	304 304L 304LN 321	4301 4307 4311 4541	308L/MVR-HX
1.4436 1.4432 1.4429 1.4571	316 316L 316LN 316Ti	4436 4432 4429 4571	316L/SKR-HX
1.4462	S32205	2205	2205-HX
Joints between stainless steel (primarily Mo-alloyed) and carbon or low-alloy steels. Overlay welding of carbon or low-alloy steels.			P5-HX

Dimension and packaging data

Avesta 2D electrode	Diameter and length, mm			
	2.50	3.25	4.00	5.00
308L/MVR-HX 316L/SKR-HX	– 350	– 400	450 450	450 450
2205-HX	–	–	450	450
P5-HX	–	–	450	450

Avesta Welding's covered electrodes are delivered in moisture-proof, plastic capsules packed in cartons. The electrodes can also be supplied vacuum-packed.

Welding recommendations

Avesta 2D electrode	Diameter mm	Flat (PA) Current, A
308L/MVR-HX 316L/SKR-HX 2205-HX P5-HX	2.50 3.25 4.00 5.00	60- 90 80-130 110-170 170-230

Welding current can be either DC+ or AC. However, DC+ always gives the best weldability. Welding must be with a short arc and no weaving. To minimise dilution in overlay welding, small overlaps and the angling of the arc towards the preceding bead are essential.

Avesta Welding AB
P.O. Box 501, Koppardalen
SE-774 27 Avesta, Sweden
Tel: +46 (0)226 815 00
Fax: +46 (0)226 815 75
info@avestawelding.com
www.avestawelding.com

Avesta
Welding