

MIDALLOY ER 35/45NB BARE WIRE

CLASSIFICATION

- EN 18274 S N Z (NiCr36Fe15Nb0.8)
- There is no AWS classification

DESCRIPTION

- MIDALLOY ER35/45NB is used to weld cast furnace tubes.
- Controlled composition for optimum creep properties

APPLICATION

- Midalloy ER 35/45NB is used to weld cast materials of similar chemical composition.
- Welding high temperature furnace components and resistant to scaling up to 2,150°F
- Can be used for joining or surfacing

TYPICAL CHEMISTRY

C	Cr	Ni	Mo	Mn	Si	P	S	Nb	Ti	Cu	Sn	Zr	Al
0.42	35.2	45.5	0.29	1.04	1.6	0.010	0.010	0.8	0.07	0.10	0.10	0.10	0.012

TYPICAL MECHANICAL PROPERTIES ALL WELD METAL

TENSILE STRENGTH	65,000 PSI
YIELD STRENGTH	35,500 PSI
ELONGATION IN 2"	6%

WELDING PARAMETERS (see page 2)

STANDARD PACKAGING

- 3/32" X 36" GTAW 10 Lb. Tube / 60 Lb. Carton
- 1/8" X 36" GTAW 10 Lb. Tube / 60 Lb. Carton
- .045" GMAW 30 Lb. Spool

3/5/21

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

MIDALLOY'S TYPICAL WELDING PARAMETERS FOR 35/45NB WELDING WIRE

GMAW (SHORT CIRCUITING MODE)

WIRE DIA.	AMPERAGE DCRP	VOLTAGE	WIRE SPEED, IN./MIN.	JOINT THICKNESS IN.	GAS
.035"	70-90	18-20	150-200	.050" - 3/16"	75Ar / 25He
	70-90	17-20	150-200	.050" - 3/16"	90He / 7.5Ar / 2.5CO ₂
	70-90	17-20	150-200	.050" - 3/16"	69Ar / 30He / 1CO ₂
.045"	75-160	19-22	175-225	1/8" - 3/4"	75Ar / 25He
	75-160	19-22	175-225	1/8" - 3/4"	90He / 7.5Ar / 2.5CO ₂
	75-160	18-22	175-225	1/8" - 3/4"	69Ar / 30He / 1CO ₂

GMAW (SPRAY TRANSFER MODE)

.035"	140-190	26-30	200-275	1/8" and up	75Ar / 25He or
.045"	190-250	30-32	300-350	3/8" and up	98Ar / 2CO ₂

GMAW (PULSED CURRENT MODE)

.045" Avg.	120-150	18-20	175-225	1/8" - 3/4"	75Ar / 25He or
Peak	250-300				100Ar overlay
.045" Avg.	120-150	18-20	175-225	1/8" - 3/4"	69Ar / 30He / 1CO ₂
Peak	250-300				65Ar / 33He / 2CO ₂

GTAW (TIG)

JOINT THICKNESS IN.	TUNGSTEN ELECTRODE DIA. IN.	FILLER WIRE DIA. IN.	AMPERAGE DCSP	VOLTAGE	GAS
.030" - 1/16"	1/16"	1/16"	35-60	9-12	100Ar
1/16" - 1/8"	1/16" or 3/32"	1/16" or 3/32"	50-95	9-12	100Ar
1/8" - 1/4"	3/32" or 1/8"	3/32" or 1/8"	75-150	10-13	100Ar
1/4" and up	3/32" or 1/8"	3/32" or 1/8"	130-150	10-13	100Ar

Note: This is a completely austenitic filler material and requires special welding restrictions:

- Remove rust, scale, grease, or other foreign material from joint area prior to welding.
- Taper grind all starts and stops to insure proper tie-in of welds.
- Use stringer beads only, watch for crater cracks.
- Avoid concave weld beads – be sure weld beads have positive reinforcement.
- Use low heat input (see welding parameters above).
- Normally no preheat required.
- Keep interpass temperature under 350°F.
- Whenever possible, design for full penetration welds.
- Fill all craters to avoid crater cracks.
- Allow bead start to “over build up” to avoid crater cracks.
- Avoid highly restrained weld joint designs to avoid cracking due to high stress.

3/5/21

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.