

CSF-71T

For mild steel and 490 N/mm² class high tensile strength steel



Applications

Butt, fillet welding of mild steel & 490N/mm² high tensile strength steels of structure such as bridges, buildings, storage tanks, ships and industrial machinery.

Specification

AWS A5.20 E71T-1C / 1M

EN ISO 17632-A T42 0 P C1[M21] 1 H10
B T492T1-1C1(M21)A-H10

**Characteristics
on usages**

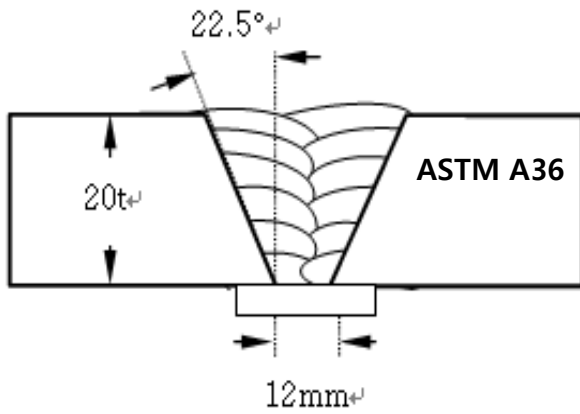
- 1) CSF-71T is a rutile type flux cored wire and designed for all-position welding by single pass & multi pass with 100%CO₂ and 75~80%Ar+20~25% CO₂ gas shielding.
- 2) It provides the excellent usability with stable arc, less spattering, good bead appearance, better slag removal, and less quantity of welding fume comparable to solid wire.
- 3) It provides a good welding efficiency thank to high deposition rate particularly.

Notes on usages

- 1) It is suitable to use shielding gas of 20~25 ℓ/min.
- 2) The distance between tip & base metal is to be 20~25mm.
- 3) Protect the weld with a screen to prevent blowholes caused by wind where the wind velocity is 2m/sec.
- 4) Thick heavy plate should be welded under proper preheating & interpass-Temperature.



Mechanical properties & Chemical compositions of all weld metal test



(Joint preparation & Layer Details)

Wire Dia.	1.6 mm
Current/Polarity	DCEP
Ampere / Voltage	280 A / 26~28 V
Shield gas	CO ₂ , 20 l/min.
CTWD	20~25 mm
Inter-pass temp.	150 ± 15 °C
Welding position	1 G
Welding speed	250 ~ 300 mm/min.

Chemical compositions

(wt.%)

	C	Mn	Si	S	P	Ni	Cr	Mo	V
AWS A5.20	0.12	1.75	0.90	0.03	0.03	0.50	0.20	0.30	0.08
100% CO ₂	0.04	1.35	0.47	0.01	0.01	0.01	0.03	0.01	0.01
75%Ar-25%CO ₂	0.04	1.45	0.53	0.01	0.01	0.01	0.03	0.01	0.01

Mechanical properties

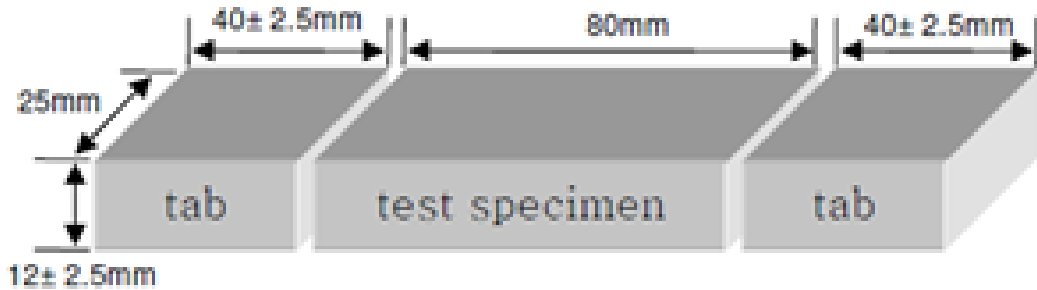
	Tensile properties			CVN-IE
	YP(MPa)	TS(MPa)	El.(%)	@-20°C
AWS A5.20	≥ 400	490-660	≥ 22	≥ 27J
100% CO ₂	515	595	28.5	101.7
75%Ar-25%CO ₂	525	612	28.1	78.0



Diffusible hydrogen Content

Welding condition

Specification	AWS A4.3 / GC method
Wire Dia.	1.6 mm
Current/Polarity	DCEP
Ampere	280 A
Voltage	28 V
Shield gas	CO ₂ , 20 l/min.
CTWD	20 mm
Welding speed	280~320 mm/min.



Result

	X1	X2	X3	X4
100% CO ₂	3.4	4.2	3.6	4.0
75%Ar-25%CO ₂	4.3.	4.8	4.5	4.6

Average Hydrogen Content

100% CO ₂	3.8 ml/100g
75%Ar-25%CO ₂	4.5 ml/100g



Size available / Recommend current(DCEP) Deposition rate / efficiency / Packaging

Size available/Recommend current (DCEP)

		1.2mm	1.4mm	1.6mm
Flat Horizontal fillet	A	180~270	200~290	200~320
Vertical up	A	140~200	160~240	160~260
Overhead	A	140~220	160~260	160~280

Deposition rate / efficiency

	Amp.	Volt.	Depo. Rate (kg/hr.)	Depo. Efficiency (%)
1.2mm CO ₂ gas	160	26	2.54	88.9
	200	28	3.48	88.2
	240	30	4.40	89.8
	280	32	5.70	88.6
	320	34	7.14	89.4
1.6mm CO ₂ gas	180	24	2.11	86.4
	300	30	4.56	87.2
	360	34	6.18	87.5
	420	37	7.91	88.4

Packaging

Wire Dia. (mm)	Type	Unit. (kg)
1.2 / 1.4/ 1.6	Spool	5, 12.5, 15, 20
	Pack	100, 200, 300



Approval / Wire feedability evaluation

Approval

	CO ₂ gas	Mix gas
ABS	2SAH10, 2YSA H10	2YSAH10
BV	SA2M, SA2YM H10	SA2M, SA2YM H10
DNV-GL	II YMS(H10)	II YMS(H10)
LR	DXVudO, BF, 2YS, H10	DXVudO, BF, 2YS, H10
RINA	2Y S H10	2Y S H10
NK	KSW52G(C)H10	-

Wire feedability evaluation model

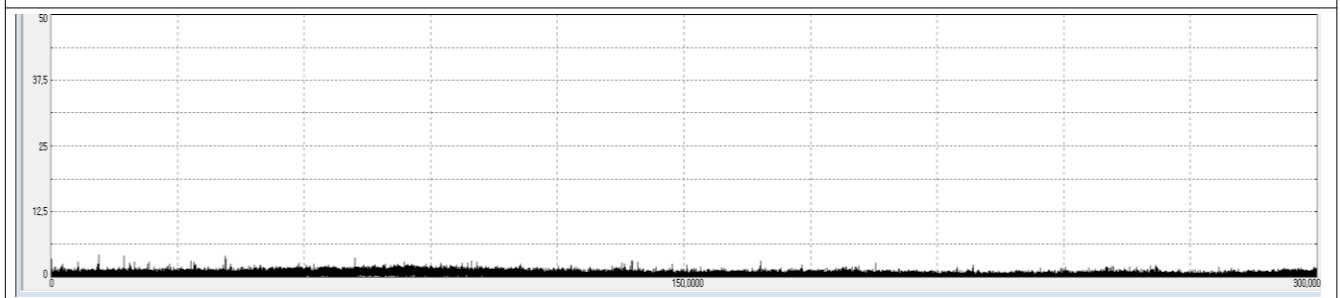
Cable type	Cable length	Welding condition	Welding time	Welding equipment	CTWD
1 turn/ 2 turn	6 m	300~320A/ 32~34V	300 sec. 3 times	Arc monitoring system	25mm

Wire feedability evaluation (Feeding resistance value)

Very good	Good	Normal	Bad	Very bad
~0.4	0.41~0.60	0.61~0.80	0.81~1.00	1.1~

Evaluation result

Feeding resistance : 0.38



AWS D 1.8 / Seismic welding test

Welding conditions

	Wire Dia. (mm)	Heat input (KJ/mm)	Shield gas	Remark
#1	1.2	1.14	100% CO ₂	Low Heat input
#2	1.6	3.25		High Heat input
#3	1.2	1.12	75%Ar+ 25%CO ₂	Low Heat input
#4	1.6	3.34		High Heat input

Test results

Spec.	Y.P. (MPa)	T.S (MPa)	El. (%)	CVN-IE (J)
	≥400	≥480	≥22	≥54 @+20°C
#1	501	585	28.4	79.7
#2	487	576	31.2	128.5
#3	551	637	27.1	81.3
#4	519	627	29.0	116.0

