



WE SHAPE THE FUTURE

AMI® // ARCAIR® // EXATON™ // FILARC® // GASARC® // GCE® // STOODY® // TBI® // THERMAL DYNAMICS® // TWECO® // VICTOR®

OBSAH PŘÍSPĚVKU



- PŘÍDAVNÉ MATERIÁLY
- SOUVISLOSTI
- TRENDY
- BUDOUCNOST

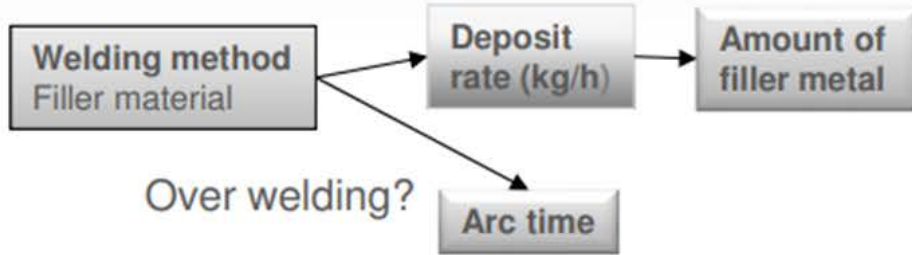
ESAB VAMBERK 2022 © ALEŠ PLÍHAL

ales.plihal@esab.cz



SOUVISLOSTI

„TECHNICKÉ a EKONOMICKÉ“



Welding method	Deposition rate, kg/h
MMA	1-7
GMAW	2-10
FCAW	2-15
SAW	8-40

Welding method	Efficiency (%)
MMA	50-70
GMAW	95-99
FCAW-metal cored	95
FCAW – Flux cored	85
SAW	100



Welding method	Arc time factor
MMA	15-30%
Manual GMAW	15-30%
Mechanized GMAW	40-80%
Robotized GMAW	40-70%
Mechanized SAW	40-80%

Slide 11

SOUVISLOSTI

„PAPÍROVÉ“

DNV GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 106973-2011-AQ-SWE-SWEDAC / 2006-SKM-AE-1093 / 2008-SKM-AHSO-143 Initial certification date: 11 January, 2008 Valid: 24 February, 2021 - 31 January, 2023 (9001, 14001) 24 February, 2021 - 30 September, 2021 (18001)

This is to certify that the management system of

ESAB GROUP

420 National Business Parkway, 5th Floor, ANNAPOLIS JUNCTION, MD, 20701, USA and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Management System standards:
ISO 9001:2015 / ISO 14001:2015 / OHSAS 18001:2007

including STEMFS 2014:2 for the sites Göteborg, Laxå and Perstorp

This certificate is valid for the following scope:
Development, design, production, sales and distribution of welding and cutting products with associated services

Place and date:
Solna, 24 February, 2021

For the issuing office:
DNV GL - Business Assurance
Box 6046/Elektrogatan 10, 171 54, Solna, Sweden

Accred. no.1053
Certification of Management Systems
ISO/IEC 17021-1

Ann-Louise PIET
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance Sweden AB, Box 6046, 171 06 Solna, Sweden. TEL: +46 8 587 940 00. <http://assurance.dnvgl.com>

Certificate

Conformity of factory production control pursuant to Regulation (EU) No. 305/2011: System 2+ 0035-CPR-C1PV

No. of Certificate: According to Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 (Construction Products Regulation - CPR), this Certificate applies to the construction product stated below:

Scope of application: **Welding consumable** (filler metals and fluxes) for fusion welding of metallic materials intended to be used in metal structures or metal/concrete composite structures:
DE = filler wire / SS = filler rod / SD = filler wire / UP = SAW filler wire / FDE = Tubular cored electrode

DE / SS / SD / UP	FDE	Welding Flux
EN ISO 14341	EN ISO 17632	EN ISO 14174
EN ISO 14343	EN ISO 17633	
EN ISO 21952	EN ISO 17634	
EN ISO 16384	EN ISO 18276	
EN ISO 18274	EN 14700	
EN ISO 636		
EN ISO 14171		
EN ISO 26304		
EN ISO 24598		
EN 14700		

Name and address of the manufacturer: **ESAB AB Lindholmsalén 9, Box 8004 SE-402 77 Gothenburg, Sweden**

Factory: Manufacturing premises: **ESAB CZ S.r.o., CLEN KONCERNU Smetanovo nábřeží 334, CZ-51754 Vamberk, Czech Republic**

Specified requirements: This document is to certify that all the regulations governing the assessment and verification of constancy of performance as detailed in Annex ZA of the harmonized standard **EN 13479:2017** are applied under System 2+ and that the factory production control meets all the requirements described therein.

Period of validity: This Certificate, first issued on **August 25, 2006** will be valid as long as the methods of testing and/or requirements for factory production control, for assessment of performance of stated characteristics which are referred to in the harmonized standard remain unchanged and as long as minor changes only will be made with regard to the product and manufacturing conditions on site. It will expire on **December 31, 2021** at the latest.

Cologne, August 7, 2019

TÜV Rheinland Industrie Service GmbH
Notified Body for Construction Products (NB 0035)
Am Graeven Stein, D-51105 Köln, GERMANY, e-mail: is@de.tuv.com

Dipl.-Ing. A. Makowka
Certification Body for Construction Products
Rev.3

www.tuv.com

IAF DAKKS TÜV Rheinland® Precisely Right.

ESAB

DOP No: ESAB5608 Vyd.: 0 Značení: Datum registrace: 2013-06-25 Strana: 1(2)

CE

PROHLÁŠENÍ O VLASTNOSTECH

podle NAŘÍZENÍ EVROPSKÉHO PARLAMENTU A RADY (EÚ) č. 305/2011

- Jedinečný identifikační kód typu výrobku:
E-B 127 - EN ISO 2560-A: E 50 A Z B 42 H10 (Mn max 2.4%)
- Typ, série nebo sériové číslo nebo jakýkoliv jiný prvek umožňující identifikaci stavebních výrobků podle čl. 11 odst. 4:
Obalená elektroda, s položkou, která nezačíná na: 5608
- Zamýšlené použití nebo zamýšlená použití stavebního výrobku v souladu s příslušnou harmonizovanou technickou specifikací podle předpokladu výrobce:
Spotřební materiál používaný u kovových konstrukcí nebo u kompozitních kovů a u betonových konstrukcí.
- Jméno, firma nebo registrovaná obchodní známka a kontaktní adresa výrobce podle čl. 11 odst. 5:
ESAB / ESAB AB, Box 8004, SE-402 77 Göteborg, Švédsko.
- Případně jméno a kontaktní adresa způsobilého zástupce, jehož plná moc se vztahuje na úkony uvedené v čl. 12 odst. 2:
Nežádá se
- Systém nebo systémy posuzování a ověřování stálosti vlastností stavebních výrobků, jak je uvedeno v příloze V:
Systém 2+
- V případě prohlášení o vlastnostech týkajících se stavebního výrobku, na který se vztahuje harmonizovaná norma:
Notifikovaná osoba certifikace pro kontrolu výroby 0035 - TÜV Rheinland Industrie Service GmbH, Kolín n. Rýnem, Německo - provedla vstupní kontrolu výrobního závodu a výrobní kontrolu tohoto závodu, dále provádí trvalý dohled, vyhodnocení kontroly výroby dané ho závodu a vydala tento certifikát shody pro kontrolu výroby závodu, Certifikát č. 0035-CPD-C 100.
- V případě prohlášení o vlastnostech týkajících se stavebního výrobku, pro který bylo vydáno evropské technické posouzení:
Nežádá se
- Vlastnosti uvedené v prohlášení:

Základní charakteristiky (EN 13479:2004)	Vlastnost	Harmonizované technické specifikace
Rozměrová tolerance	Spĺňuje požadavky	EN 13479:2004, EN ISO 544:2011
Tažnost	≥18 %	EN 13479:2004, EN ISO 2560-A:2009
Pevnost v tahu	≥560 MPa, s720 MPa	EN 13479:2004, EN ISO 2560-A:2009
Mez kluzu	≥500 MPa	EN 13479:2004, EN ISO 2560-A:2009
Zlo úklon norem v ohybu	≥47 J, 20° C	EN 13479:2004, EN ISO 2560-A:2009
Chemické složení	Spĺňuje požadavky	EN 13479:2004, EN ISO 2560-A:2009
Zivotnost	Spĺňuje požadavky	EN 13479:2004
Nebezpečné látky	Spĺňuje požadavky*	EN 13479:2004
Emise radioaktivity	Není požadováno	EN 13479:2004

*) Viz Bezpečnostní list, je k dispozici na www.esab.com

VdTÜV-Kennblatt for welding consumables

	1 Manufacturer/Supplier ESAB / ESAB AB with manufacturer's works according to VdTUV list 1000		2 No. of VdTUV-Kennblatt: 09124-07 16.02.2017	
	3 Welding consumable*: Schweißstab			
4 Trade name*: OK Tigrod 12.61				
7 Type*: EN ISO 636-A				
11 Diameter range: 1,6 bis 3,2 mm				
12 Auxiliary materials: EN ISO 14175				
13 The validity of this Kennblatt will be certified, res Schweißzusätze				
15 Materials and postweld heat treatment				
Pos	Wb	Group / Material 1		
	S	Gruppe 1.1		
	U	Gruppe 1.1		
	S	Gruppe 1.2		
	U	Gruppe 1.2		
	S	Gruppe 1.3 (ReH max. 420 MPa)		
	U	Gruppe 1.3 (ReH max. 420 MPa)		
	S	Gruppe 2.1 (ReH max. 420 MPa)		
	U	Gruppe 2.1 (ReH max. 420 MPa)		
	S	Gruppe 3.1 (ReH max. 420 MPa)		
	U	Gruppe 3.1 (ReH max. 420 MPa)		
16 Material groups acc. to CR ISO 15608				
21 Root weldability: verified				
23 Wall thickness: max. 18 mm, 9				
24 Type of current and polarity: C-				
25 Welding position according to DIN EN ISO 6947				
26 Highest operating temperature in the short-term than:				
27 Highest operating temperature in the long-term:				
28 Lowest operating temperature/as for parent metal, but not lower than: -50°C				
29 Design stress value/as for parent metal: wie Grundwerkstoff				
30 For use in the long-term range: ---				
31 Resistance to intergranular corrosion proven in accordance with: ---				
32 Remarks: Schweißstabprägung: EA 1261 und ER 70S-6				
33 The approval test was done on the basis of VdTUV-Merkblatt 1153. Where nothing different is said under the heading "Remarks", this welding consumable is suitable provided Annex I Point 4 of the Pressure Equipment Directive 97/23/EC is observed.				
34 Explanations: A tempered L solution annealed and quenched N normalized S stress-relieved St stabilized U non-annealed V hardened and tempered W soft annealed G+ direct current plus pole G- direct current minus pole W alternating current				
35 Compiled in accordance with the data of: TÜV Rheinland				
The duplication, circulation, copy and complete edition by photomechanical or similar techniques remain subject to the editor's approval even if only used in extracts. Editor: Verband der TÜV e. V. Distribution: TÜV-Media GmbH, Am Grauen Stein, 51105 Köln - Unternehmensgruppe TÜV Rheinland Group				

15 Materials and postweld heat treatment

Pos	Wb	Group / Material 1
	S	Gruppe 1.1
	U	Gruppe 1.1
	S	Gruppe 1.2
	U	Gruppe 1.2
	S	Gruppe 1.3 (ReH max. 420 MPa)
	U	Gruppe 1.3 (ReH max. 420 MPa)
	S	Gruppe 2.1 (ReH max. 420 MPa)
	U	Gruppe 2.1 (ReH max. 420 MPa)
	S	Gruppe 3.1 (ReH max. 420 MPa)
	U	Gruppe 3.1 (ReH max. 420 MPa)



Annex

DB Systemtech
Zertifizierungsstelle für Schweißzusätze
14774 Brandenburg-Kirchmöser, Germany

Information on the scope of certified materials

Certified materials groups and additional materials groups covered in accordance with CEN ISO/TR 15608

In addition to the tested materials groups and/or materials listed under "Scope of approval certificate", following materials groups and/or materials are also considered to be covered by the approval certificate

Annex 3, Table 1: Unalloyed and low-alloy steels, cast steel, fine grain structural steels

Certified materials group	Material designation according to selected DIN EN materials standards ¹⁾	Applicable materials groups according to CEN ISO/TR 15608
Materials group 1 as defined in CEN ISO/TR 15608 (unalloyed steels with R _{eH} ≤ 460 MPa)		
1	S235JR to S275J2+N DIN EN 10025-2 S275N DIN EN 10025-3 S275M DIN EN 10025-4	1.1
2	S235JR to S355 K2 DIN EN 10025-2 S275N to S355 N or NL ²⁾ DIN EN 10025-3 S275M to S355 M or ML ²⁾ DIN EN 10025-4 GE200, GE240 DIN EN 10293 B500A, B500B DIN 488-1	1.1, 1.2
3	S235JR to S355 K2 DIN EN 10025-2 S275N to S460N or NL ²⁾ DIN EN 10025-3 S275M to S460M or ML ²⁾ DIN EN 10025-4 GE200, GE240 DIN EN 10293 B500A, B500B DIN 488-1 ⁴⁾	1.1, 1.2, 1.3, 2.1
4	S235JR to S355 K2 DIN EN 10025-2 S275N to S355 N or NL ²⁾ DIN EN 10025-3 S275M to S355 M or ML ²⁾ DIN EN 10025-4 S275J0W - S355 J2W DIN EN 10025-5 GE200, GE240 DIN EN 10293	1.1, 1.2, 1.4

SOUVISLOSTI

Page 1 / 1




Certificate number : WM 1357/08/X.0
File number : 102/06

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Marine & Offshore Classification Rules

This certificate is issued to
ESAB AB
Perstorp - SWEDEN
for the product
Covered Electrode for Manual Metal Arc Welding

Designation : OK 48.00
Grade : 3Y H5
Description : Basic covering
Diameter : 1,6 - 7,0 mm
Welding current : DC (+)
Welding position : Down hand (P), Vertical upwards (V), Horizontal-Vertical (H), Overhead (T), Horizontal fillet (FP), Vertical upwards fillet (FM), Overhead fillet (FT)
Remark : Nil

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of Bureau Veritas Marine & Offshore Rules on Materials and Welding for the Classification of Marine Units.


This certificate will expire on: 30 Apr 2022

For Bureau Veritas Marine & Offshore,
Local office: BV GOTHENBURG
Issued on 30 Apr 2021
Surveyor: U. MENTZER




This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) will be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The Electronic Version is available at: <http://www.veritstarm.com/veritstarm/jsp/viewPublicPdfWelding.jsp?id=131umloog>
BV Mod. Ad E 537 June 2017 This certificate consists of 1 page(s)



Welding Consumables Annual
Re- Approval Certificate



Certificate no: GOT 1810050/5
Page 1 of 1

Date: 18 June 2019 Office: GOTHENBURG

This certificate is issued to
ESAB Perstorp AB

The undermentioned welding consumables supplied by the company named above have been approved for a further year ending 31/12/2019 with the grading shown.

Trade Name	Section	Grading
OK 48.00	3	DXVuQ, BF, 3Ym, H5, NA
OK 48.04	3	DXVuQ, BF, 3Ym, H5, NA
OK 48.05	3	DXVuQ, BF, 3Ym, H5, NA
OK 48.08	3	DXVuQ, BF, 4Y40m, H5, NA
OK 48.15	3	DXVuQ, BF, 3Ym, H5, NA
OK 53.70	3	DXVuQ, BF, 3Ym, H5, NA
OK 55.00	3	DXVuQ, BF, 3Ym, H5, NA
OK 73.08	3	DXVuQ, BF, 3Ym, H10, NA
OK 73.68	3	DXVuQ, BF, 5Y42m, H5, NA
OK 92.55	3	DXVuQ, BF, 5N; NA, NA
OK Femax 33.80	3	D, BF, 2Ym, No
OK Femax 38.65	3	D, BF, 3Ym, H5, NA
OK Femax 38.95	3	D, BF, 3Ym, H10, NA
OK Femax 39.50	3	D, BF, 3Ym, No


Michael Wall
Surveyor
Lloyd's Register

A subsidiary of Lloyd's Register Group Limited

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

Form 6227 (2014.01)

„PAPÍROVÉ“



WELDING CONSUMABLE CERTIFICATE

Certificate No: 201450-4810883-001
Report No: 4810883
Port of Gothenburg, Sweden
Date: 11 June 2021

THIS IS TO CERTIFY

THAT THE UNDERSIGNED SURVEYOR TO THIS BUREAU DID, AT THE REQUEST OF ESAB AB, ATTEND THEIR PLANT AT PERSTORP, ON THE 19 DAY OF JANUARY, 2021 AND ON SUBSEQUENT DATES, IN ORDER TO CARRY OUT A PLANT SURVEY OF FACILITIES AND ASSOCIATED QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES AND TO WITNESS AND REPORT ON THE ANNUAL APPROVAL TESTING OF WELDING CONSUMABLES; AND,

THAT THE FACILITY IS CONSIDERED CAPABLE OF PROVIDING AN ACCEPTABLE UNIFORM PRODUCT, AND THAT EACH WELDING CONSUMABLE LISTED BELOW WAS FOUND IN COMPLIANCE WITH THE SPECIFICATION INDICATED AND IS ELIGIBLE TO BE PLACED ON THIS BUREAU'S APPROVED WELDING CONSUMABLES LIST IN THE SHIELDED METAL ARC WELDING SECTION:

TRADE NAME	SPECIFICATION	GRADE OR CLASS	SHIELDING GAS	POSITION	CURRENT/ POLARITY	SIZE
OK 48.00	ABS	3Y H5	--	All	DC EP	1,6-7,0mm
OK 48.04	ABS	3Y H5	--	All	AC / DC EP	2,0-6,0mm
OK 48.04	AWS A5.1-91	E7018	--	All	AC / DC EP	4,0-6,0mm
OK 48.05	ABS	3Y H5	--	All	DC EP	1,6-7,0mm
OK 48.08	ABS	3Y H5*	--	All	AC / DC EP	2,5-5,0mm
* Recommended by manufacturer for low temperature applications down to -40° C.						
OK 48.08	AWS A5.1-2006	E7018-G	--	All	AC / DC	4,0-6,0mm
OK 48.15	ABS	3Y H5	--	All	AC / DC EP	2,0-6,0mm
OK 48.15	AWS A5.1-91	E7018	--	All	AC / DC EP	2,0-6,0mm
OK 53.68	ABS	3Y H5*	--	All	AC / DC EP	2,5-5,0mm
* Recommended by manufacturer for low temperature applications down to -40° C.						
OK 53.70	ABS	3Y H5	--	All, V-Down	AC / DC EP	2,5-4,0mm
OK 53.70	AWS A5.1-91	E7018-H4	--	All, V-Down	AC / DC EP	2,5-4,0mm
OK 55.00	ABS	3Y H5	--	All	AC / DC EP	2,0-6,0mm
OK 61.30	--	Stainless*	--	All	DC EP	1,6-5,0mm
* Manufacturer's guaranteed minimum properties T.S. 510 N/mm ² . E.L. 30%. R.A. 40%.						
OK 63.30	SF/AWS A5.4	E316L-17*	--	All	AC / DC EP	1,6-5,0mm
* Manufacturer's guaranteed values T.S. min 520 MPa, CVN -20° C min 34 J.						
OK 63.35	--	Stainless*	--	All	DC EP	2,5-5,0mm
* Manufacturer's guaranteed minimum properties T.S. 550 N/mm ² . E.L. 30%. R.A. 45%.						

Note: This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a full description of any restrictions or limitation on the vessel's service or survey. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other party of any warranty express or implied.

Materials Manufacturer Approval Audits
CLS-PRI-00826 CLS-ATT-01565 Rev 0 Page 1 of 1



SOUVISLOSTI



РОССИЙСКИЙ МОРСКОЙ РЕГИСТР СУДОХОДСТВА
RUSSIAN MARITIME REGISTER OF SHIPPING

6.5.33

СВИДЕТЕЛЬСТВО
ОБ ОДОБРЕНИИ СВАРОЧНЫХ МАТЕРИАЛОВ
CERTIFICATE
OF APPROVAL FOR WELDING CONSUMABLES

Изготовитель
Manufacturer
ESAB Perstorp AB
(VAT No. SE 663000171401)

Адрес
Address
Box 55, 284 21 Perstorp, Sweden

Сварочные материалы
Welding consumables
Сварочные электроды покрытые, металлические, для ручной дуговой сварки марок:
Coated electrodes for manual arc welding of trade names:
OK 48.00, OK 48.04, OK 48.08, OK 48.15, OK 53.70, OK 55.00, OK 73.08, OK 73.68, OK 73.79, OK Femax 33.80, FILARC C23, FILARC 565, FILARC 885, FILARC 35.

Первоначальные испытания проведены под техническим наблюдением Российского морского регистра судоходства.
Initial tests have been carried out under technical supervision of Russian Maritime Register of Shipping.

Акт № 18.00438.262 от 26.06.2018
Survey Report No. of (date/date)

Техническая документация и дата ее одобрения Российским морским регистром судоходства
Technical documentation and date of its approval by Russian Maritime Register of Shipping

Технические спецификации и Протоколы испытаний одобрены письмами № 262-381-086-116066 от 27.04.2018, 262-381-086-172553 от 26.06.2018.
Product Data Sheets and Tests Reports were approved by the RS Letters Nos. 262-381-086-116066 dd 27.04.2018, 262-381-086-172553 dd 26.06.2018.

„PAPÍROVÉ“

На основании освидетельствований и проведенных испытаний удостоверяется, что вышеупомянутые сварочные материалы удовлетворяют требованиям правил Российского морского регистра судоходства.
This is to certify that the welding consumables listed above have been surveyed and tested and thereby meet the requirements of the Russian Maritime Register of Shipping rules.

Область одобрения и технические данные согласно Приложению (на 1 листе).
Scope of approval and technical data listed in Annex (on pages).

Настоящее Свидетельство с Приложением (на 1 листе) действительно до 27.04.2023 и подлежит
This Certificate with Annex (on pages) is valid until (date/date) and is subject to

ежегодному подтверждению.
annual confirmation.

Настоящее Свидетельство теряет силу в случаях, установленных в Правилах технического наблюдения за постройкой судов и изготовлением материалов и изделий для судов.
This Certificate becomes invalid in cases stipulated in Rules for the Technical Supervision During Construction of Ships and Manufacture of Shipboard Materials and Products.

Дата выдачи 26.06.2018 № 18.10031.262
Date of issue No.

Российский морской регистр судоходства
Russian Maritime Register of Shipping
А.Б. Клебановский / A. Klebanovskiy
(подпись) (фамилия, инициалы)
(signature) (name)



ОТМЕТКИ О ПОДТВЕРЖДЕНИИ СВИДЕТЕЛЬСТВА
ENTRIES ON CONFIRMATION OF CERTIFICATE

На основании результатов испытаний и освидетельствований действие настоящего Свидетельства подтверждается
Based on the results of tests and survey, the validity of this Certificate is confirmed

до 27.04.2023 Дата: 27.04.2019
until Date:

Инженер-инспектор:
Surveyor:
262 003



до 27.04.2023 Дата: 27.04.2019
until Date:

Инженер-инспектор:
Surveyor:
262 003



до _____ Дата: _____
until Date:

Инженер-инспектор:
Surveyor:
(подпись)
(signature)

до _____ Дата: _____
until Date:

Инженер-инспектор:
Surveyor:
(подпись)
(signature)

01/2010

PC 6.5.33



Polski Rejestr Statków

TYPE APPROVAL CERTIFICATE
ŚWIADCTWO UZNANIA TYPU WYROBU

Polish Register of Shipping certifies that the undernoted product type
Polski Rejestr Statków zaświadcza, że niżej określony typ wyrobu

COVERED ELECTRODE FOR MANUAL ARC WELDING
Elektroda otulona do spawania łukowego ręcznego

Electrode: Elektroda:	Grade: Kategoria:	Welding position: Pozycja spawania:
OK 48.00	3Y H5	PA, PB, PC, PD, PE PF
OK 48.04	3Y H5	PA, PB, PC, PD, PE PF
OK 48.15	3Y H5	PA, PB, PC, PD, PE PF
OK 53.68	3Y H5	PA, PB, PC, PD, PE PF
OK 73.68	5Y42 H5	PA, PB, PC, PD, PE PF

manufactured by
wsproduktowany przez

ESAB Perstorp AB
Elektröndvägen 12
284 33 Perstorp
SWEDEN

Is approved as complying with the requirements of the
uznana za spełniający wymagania

Rules for the Classification and Construction of Sea-going Ships - Part IX: Materials and Welding
Przepisy klasyfikacji i budowy statków morskich - Część IX: Materiały i spawanie

The Approval Certificate is valid, provided the conditions stated overleaf the present Certificate are complied with.
Świadczenie uznania jest ważne przy zachowaniu warunków podanych na odwróce niniejszego Świadczenia uznania.

Certificate No.
Nr Świadczenia TT/244/710403/21

Expiry date
Data ważności 2022-03-30

Issued at/Wydano w

Gdańsk, 2021-03-30



Signature/Podpis

Polish Register of Shipping S.A.
al. Gen. Józefa Hallera 126
80-416 Gdańsk, Poland

Tel. +(48) 58 346 17 00
Fax +(48) 58 346 03 92

e-mail: mail@owagprs.pl
www: http://www.prs.pl/

Continued overleaf/Ciąg dalszy na odwróce

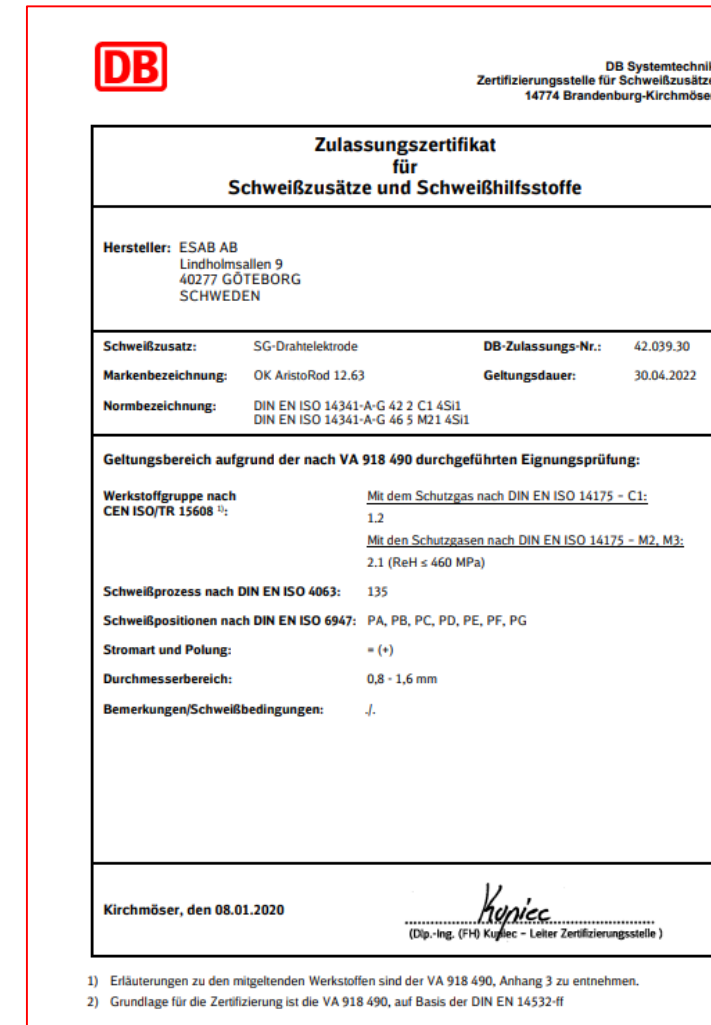
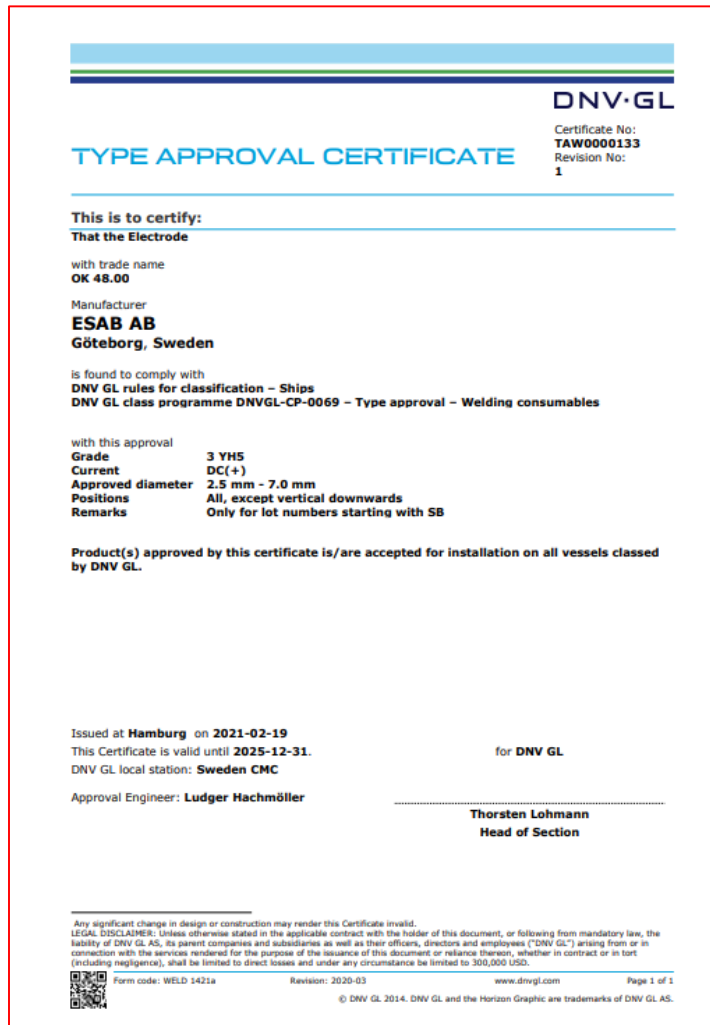
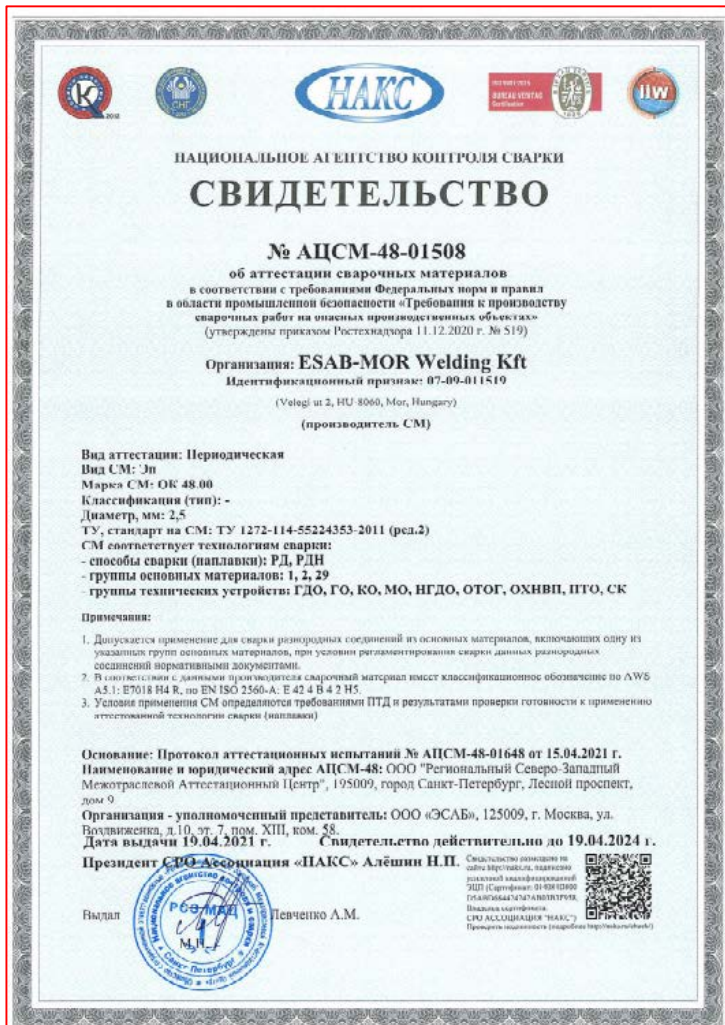
PRS 2019-08-08


1/2



SOUVISLOSTI

„PAPÍROVÉ“





**INSPEKČNÍ CERTIFIKÁT (3.1) - Chemická analýza
ZKUŠEBNÍ ZPRÁVA (2.2) - Mechanické vlastnosti
INSPECTION CERTIFICATE (3.1) - Chemical analysis
TEST REPORT (2.2) - Mechanical properties**

Odběratel/ Customer: 452746492
 ČEZ, a.s., Duhová 2/1444, 140 53 PRAHA
 organ.jedn. JADERNÁ ELEKTRÁRNA
 DUKOVANY
 675 50

Číslo certifikátu/Cert no: **966/2020**
 Obj.č./Your order No: 4102204460 Zakáz.č./Our ref.: 0100096682

Číslo výrobku Item no	Název výrobku Description	Množství Quantity	Jedn. Unit	LOT
63253230GQA	OK 63.25 N 3,2 mm	561,6	Kg	SBU4310154

Chem.složení/Chem.composition(%) - Skutečné hodnoty/Actual results-v souladu s/acc to EN 10204 - 3.1

Svarový kov Weld metal	C	Mn	Si	P	S	Cr	Ni
	0,022	1,50	0,24	0,015	0,007	19,43	12,93
	Mo	V	Nb	Cu	B	Ti	Co
	2,49	0,05	0,010	0,03	0,0005	0,010	0,030
N	Ta	Nb+Ta					
	0,030	0,010	0,02				

Zkouška tahem/Tensile test Typické hodnoty/Typical data-v souladu s/acc to EN 10204 - 2.2

Svarový kov Weld metal	Temp °C	Rp 0,2 N/mm ²	Re H N/mm ²	Rm N/mm ²	A5 %
	+20	400		560	32


Zkouška rázem/Impact test Typické hodnoty/Typical data-v souladu s/acc to EN 10204 - 2.2

Svarový kov Weld metal	Temp °C	J	Temp °C	J
	+20	115		

Doplňující data/Additional data

EN ISO 3581-A	E Z 19 13 2 L B 4 2
SFA/AWS A5.4	E316L-15
NF A 81-343	E Z 19.12.2 B 20


Datum/Date: 14.12.2020



ESAB VAMBERK, s.r.o.,
 Smetanovo nábřeží 334
 517 54 VAMBERK
 CZECH REPUBLIC

Adresa/Address: IČO: 25268023 Telefon/Phone: +420 494 501 476 Fax: +420 494 501 423

Zapsaná v obchodním rejstříku vedeném Krajským soudem v Hradci Králové, odděl. C, vložka 11464.



Product Data Sheet
G 'Gas-shielded metal-arc welding'

OK AristoRod 12.50

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
Magnus Johansson	P-O Oskarsson	Helene Rasmuson	EN008489	EN008430	2019-03-04	1 (2)

REASON FOR ISSUE
Mechanical data updated.

GENERAL
The non copper coated OK AristoRod 12.50 is a manganese-silicon alloyed solid wire for GMAW of unalloyed steels, such as general structural, pressure vessel, ship building and for fine-grained carbon-manganese steels for the same purpose with a minimum yield strength of max 420 MPa. The electrode can be welded with either a gas mixture or with pure CO2 as the shielding gas. The AristoRod wires are suitable for operating at high currents with maintained disturbance free wire feeding giving a stable arc with a low amount of spatter. OK AristoRod 12.50 delivered in the unique Esab Octagonal Marathon Pac is excellent in mechanised welding applications.


Shielding Gas: M20, M21, C1 (EN ISO 14175) **Alloy Type:** Carbon-manganese steel (Mn/Si-alloyed)

CLASSIFICATIONS Weld Metal	APPROVALS
EN ISO 14341-A G 38 3 C1 3Si1	ABS 3Y SA
EN ISO 14341-A G 42 4 M20 3Si1	BV SA3YM
EN ISO 14341-A G 42 4 M21 3Si1	CE EN 13479
	DB 42.039.29
	DNV-GL III YMS
	LR 3YS H15
	PRS 3YS
	RS 3YMS
	VdTUV 10052
CLASSIFICATIONS Wire Electrode	APPROVALS (SPECIFIC)
EN ISO 14341-A G 3Si1	CWB B-G 49A 3 C1 S6 PV,ZG
SFA/AWS A5.18 ER70S-6	JIS YGW12 (C1) ZG
CSA W48 B-G 49A 3 C1 S6	NAKS/IAKC 1.0-1.6 mm PV
JIS Z 3312 YGW 12 (C1)	NAKS/IAKC 1.2-1.6 mm ZG
	RINA 3Y S PV
	RINA 3Y S ZG
	RINA 3Y S PV

APPROVAL COMMENT
APPROVALS are valid for lot numbers with prefix PV, ZG and UF. APPROVALS (SPECIFIC) are valid for lot numbers with prefix in the right column.

CHEMICAL COMPOSITION

	All Weld Metal (%)		Wire/Strip (%)	
	CO2 (C1)	80Ar/20CO2 (M21)	Min	Max
C	0.08	0.10	0.05	0.14
Si	0.63	0.72	0.80	1.00
Mn	0.94	1.11	1.40	1.60
P	0.013	0.013		0.025
S	0.012	0.012		0.025
Cu	0.07	0.07		0.15
Ti+Zr	<0,01	<0,01		0.10



Product Data Sheet
G 'Gas-shielded metal-arc welding'

OK AristoRod 12.50

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
Magnus Johansson	P-O Oskarsson	Helene Rasmuson	EN008489	EN008430	2019-03-04	2 (2)

MECHANICAL PROPERTIES OF WELD METAL

Properties	All Weld Metal		EN 80Ar/20CO2 (M21)			EN 80Ar/20CO2 (M21)			EN CO2 (C1)			
	AWS CO2 (C1)		As welded			Stress relieved 620°C 15h			As welded			
	Min	Typ	Min	Max	Typ	Typ	Min	Max	Typ	Min	Max	Typ
Rp0.2 (MPa)	400	430										
ReL (MPa)	480	530	420	640	470	370	495	510	600	440	540	
Rm (MPa)	480	530	420	640	470	370	495	510	600	440	540	
A4 (%)	22	30										
A5 (%)			22		26	28				22		25
Charpy V at 20°C (J)						130	120	90				110
Charpy V at -20°C (J)	27	75	47			100				47		75
Charpy V at -30°C (J)						90						
Charpy V at 40°C (J)						70						
Charpy V at -50°C (J)												

ECONOMICS & CURRENT DATA

Dimension (mm)	Current (A)		W	T]	H		Feed		U	
	Min	Max			Min	Max	Min	Max	Min	Max
Ø	60	200	14	95	0.8	2.3	3.2	10	18	24
0.8	70	250	15	96	0.9	3.5	3.0	12	18	26
0.9	80	300	16	96	1.0	5.5	2.7	15	18	32
1.0	100	350	17	96	1.2	7.0	2.6	15	18	34
1.14	120	380	18	97	1.3	8.0	2.5	15	18	35
1.2	130	400	18	97	1.5	8.5	2.4	15	19	35
1.32	150	420	19	97	1.6	8.7	2.3	12	22	36
1.4	225	550	20	98	2.1	9.4	2.3	10	28	38
1.6	300	650	22	98	4.4	10.2	3.0	7	32	44

W = Gas consumption (l / min)
 T] = Recovery, g weld metal / 100g wire (%)
 H = Deposit rate (kg weld metal / hour arc time)
 Feed = Feeding rate (m/min)
 U = Arc voltage (V)

- ☐ SDS
- ☐ NORMY NA FINÁLNÍ SVAŘENCE
- ☐ POŽÁRNÍ BEZPEČNOST
- ☐ OBSAH PRVKŮ
- ☐ LIKVIDACE (STRUSKA)
- ☐ CONFLICT MINERAL (TAVIDLA)
- ☐ RADIOAKTIVITA
- ☐ IMDS (AUTOMOTIVE)



Substances of assemblies and materials

Materials which are subject to legal prohibitions must not be included!
Dangerous substances formed or released during use must also be declared
Please note: GADSL list for substances that require declaration

2. Characterization of the Component

Item- /Mat.-No.: **1264127710** Report No.: -
Article Name: **OK Autrod 12.64 Diam 1.2 mm / 18 kg** IMDS ID / Version: **809476344 / 1**
Node ID: **809476344**

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
1	OK Autrod 12.64 Diam 1.2 mm / 18 kg	1264127710	809476344 / 1						
-2	Steel electrode (ER70S-6 / G 4Si1) Modified ESAB		500478469 / 1			100		1.1.1	No
-3	Carbon	7440-44-0				0.1	0.06 - 0.14		
-3	Silicon	7440-21-3				0.975	0.8 - 1.15		

EntServ Deutschland GmbH

SOUVISLOSTI

„NOREMŇÍ“

Shielding Gas: M20, M21, C1 (EN ISO 14175)

CLASSIFICATIONS Weld Metal

EN ISO 14341-A G 38 3 C1 3Si1
 EN ISO 14341-A **G 42 4 M20 3Si1**
 EN ISO 14341-A G 42 4 M21 3Si1

CLASSIFICATIONS Wire Electrode

EN ISO 14341-A G 3Si1
 SFA/AWS A5.18 ER70S-6
 CSA W48 B-G 49A 3 C1 S6
 JIS Z 3312 YGW 12 (C1)

ESAB ČSN EN ISO 14341

Dráty pro obloukové svařování nelegovaných a jemnozrnných ocelí tavící se elektrodou v ochranném plynu a jejich svarové kovy - Klasifikace systému A

Nová ČSN EN ISO 14341 nahrazuje původní normu ČSN EN 440. Podobně jako další nové klasifikační normy zavádí dva rozdílné klasifikační přístupy: systém A vychází z původní normy ČSN EN 440 a je založen na velikosti meze kluzu a nárazové práce 47J čistého svarového kovu při určité zkušební teplotě. Systém B vychází z meze pevnosti čistého svarového kovu a nebo min. nárazové práce 27J při určité teplotě. Klasifikace podle obou systémů nejsou srovnatelné. Tento katalog preferuje klasifikaci podle vzítého systému EN ISO 14341-A. Význam existujících klasifikací dle systému B je dostupný v citované normě. Existují i další nepopsané rozdíly.

značení svarového kovu G 46 3 M21 3 Si1 značení drátu

G - svarový kov-drát pro obloukové svařování tavící se elektrodou v ochranné atmosféře

Označení ochranného plynu dle EN ISO 14175

Označení pevnostních vlastností a tažnosti svarového kovu

Označení	Min. mez kluzu MPa	Pevnost v tahu MPa	Min. tažnost %
35	355	440 až 570	22
38	380	470 až 600	20
42	420	500 až 640	20
46	460	530 až 680	20
50	500	560 až 720	18

Označení nárazové práce svarového kovu

Označení	Teplota pro nárazovou práci min. 47 J
Z	nestanovené
A	>20
0	0
2	-20
3	-30
4	-40
5	-50
6	-60
7	-70
8	-80
9	-90
10	-100

Označení chemického složení drátu

Označení	Chemické složení v hmotn. % (0,01-0,05)									
	C	Si	Mn	P	S	Ni	Mo	Al	Ti+Zr	
Z										
2Si	0,06-0,14	0,50-0,80	0,90-1,20	0,025	0,025	0,15	0,15	0,02	0,15	
3Si1	0,06-0,14	0,70-1,00	1,10-1,60	0,025	0,025	0,15	0,15	0,02	0,15	
4Si1	0,06-0,14	0,80-1,20	1,00-1,50	0,025	0,025	0,15	0,15	0,02	0,15	
3Si2	0,06-0,14	1,00-1,30	1,10-1,60	0,025	0,025	0,15	0,15	0,02	0,15	
2Ti	0,04-0,14	0,40-0,80	0,90-1,40	0,025	0,025	0,15	0,15	0,05-0,20	0,05-0,25	
5Ni1	0,06-0,14	0,50-0,90	1,00-1,60	0,020	0,020	0,80-1,50	0,15	0,02	0,15	
2Ni2	0,06-0,14	0,40-0,80	0,80-1,40	0,020	0,020	2,10-2,70	0,15	0,02	0,15	
2Mo	0,08-0,12	0,30-0,70	0,90-1,30	0,020	0,020	0,15	0,40-0,60	0,02	0,15	
4Mo	0,06-0,14	0,50-0,80	1,70-2,10	0,025	0,025	0,15	0,40-0,60	0,02	0,15	
2Al	0,08-0,14	0,30-0,50	0,90-1,30	0,025	0,025	0,15	0,15	0,35-0,75	0,15	

1) Platí dělí mezi klas. (Fig. 1. Při nejvyšší mezi kluzu se musí použít sadavě mezi kluzu 0,2% (R_{0,2})_{0,025}.

2) Měření délky je příměřováno příměří zkušební tyčí.

3) Čí = 0,15%, Cu = 0,35%, V = 0,05%, pokud není stanoveno jinak. Obsah níhozí v oceli včetně poněkdi teorii plikčnosti 0,35%.

4) Jednotné hodnoty v závorkách jsou hodnoty nominální.

5) Výsledky se získávají na stejné počet platěních míst, jaké je uvedeno v tabulce podle ISO 3140:1992, příloha B, písmeno A.

■ MAG

■ MIG

■ FCAW

ESAB ČSN EN ISO 14175

Plyny a jejich směsi pro tavné svařování a příbuzné procesy

Skupina R - redukční plyny
 - jsou určeny především pro TIG, hořáči a svařování plazmou, svařování a kofezem chráněným plynem

Skupina	Podsk.	Směry v obj. %	
		Inertní Ar	Redukční H ₂
R	1	Zbytek ¹⁾	0,5 až 13
R	2	Zbytek ¹⁾	15 až 50

Skupina I - inertní plyny
 - jsou určeny především pro MIG, TIG, svařování plazmou, svařování a kofezem chráněným plynem

Skupina	Podskupina	Směry v obj. %	
		Ar	He
I	1	100	
I	2		100
I	3	Zbytek	0,5 až 95

Skupina M a C - oxidizační plyny
 - jsou určeny především pro svařování metodou MAG

Skupina M1 - slabě oxidizační

Skupina	Podsk.	Směry v obj. %			
		Oxidizační		Inertní	
		CO ₂	O ₂	Ar	He
M1	1	0,5 až 5,0	Zbytek ¹⁾	> 0 až 5	
M1	2	0,5 až 5,0	Zbytek ¹⁾		
M1	3		0,5 až 3,0	Zbytek ¹⁾	
M1	4	0,5 až 5,0	0,5 až 5,0	Zbytek ¹⁾	

Skupina M2 a M3 - středně oxidizační

Skupina	Podskupina	Směry v obj. %		
		CO ₂	O ₂	Inertní Ar
M2	1	15 až 25	Zbytek ¹⁾	
M2	2		> 3 až 10	Zbytek ¹⁾
M2	3	0,5 až 5,0	> 3 až 10	Zbytek ¹⁾
M2	4	8 až 15	0,5 až 3,0	Zbytek ¹⁾
M2	5	5 až 15	3 až 10	Zbytek ¹⁾
M2	6	15 až 25	0,5 až 3,0	Zbytek ¹⁾
M2	7	15 až 25	3,0 až 10	Zbytek ¹⁾
M3	1	25 až 90		Zbytek
M3	2		10 až 15	Zbytek
M3	3	25 až 90	2,0 až 10	Zbytek
M3	4	5,0 až 25	10 až 15	Zbytek
M3	5	25 až 90	10 až 15	Zbytek
M2	0	5,0 až 15,0		Zbytek ¹⁾

Skupina O

Skupina	Podsk.	O ₂
O	1	100

Skupina Z
 Svařovací plyn, neuváděný v této specifikaci.



SOUVISLOSTI

„NOREMNÍ“

	Classification of welding consumables								
	Steel				Other materials				
	Non-alloy and fine grain	High strength	Creep resistant	Stainless and heat resisting	Nickel	Copper	Aluminium	Cast iron	Titanium
MMA	EN ISO 2580	EN ISO 18275	EN ISO 3580	EN ISO 3581	EN ISO 14172	prEN ISO 17777			
MIG/MAG	EN ISO 14341	EN ISO 16834	EN ISO 21952	EN ISO 14343	EN ISO 18274	EN ISO 24373	EN ISO 18273	EN ISO 1071	EN ISO 24034
TIG	EN ISO 636								
Electrodes etc for submerged arc	EN ISO 14171	EN ISO 26304	EN ISO 24598						
Fluxes for submerged arc	EN ISO 14174								
Cored wires	EN ISO 17632	EN ISO 18276	EN ISO 17634	EN ISO 17633	EN ISO 12153			EN ISO 1071	
Gas welding	EN 12536 (ISO 'missing')		EN 12536 (ISO 'missing')						
Shielding gas	EN ISO 14175								

Table 2
Schedule 4 or I—Required Tests^{a, b, c}

Product Type	Carbon Steel	Low-Alloy Steel	Stainless Steel	Nickel and Ni-Alloy	Surfacing	Cast Iron	Aluminum and Al-Alloy	Copper and Cu-Alloy	Magnesium and Mg-Alloy	Titanium and Ti-Alloy	Zirconium and Zr-Alloy	Brazing and Braze Welding Filler Metals			
Covered Solid and Metal Cored (Composite) Electrodes for SMAW	(A5.1) 1, 2, 3, 4, 5 ^d	(A5.5) 1, 2, 3, 4, 5 ^d	(A5.4) 1	(A5.11) 1, 2, 4, 6	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.3) 1	(A5.6) 1, 4	—	—	—			
Bare Solid and Metal Cored (Composite) Rods and Electrodes for GTAW, PAW, GMAW, EGW	(A5.18, A5.36) 1, 2, 4	(A5.26) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.28, A5.36) 1, 2, 4	(A5.9) 1	(A5.14) 1	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.10) 1, 4 ^e , 9 ^e	(A5.7) 1	(A5.19) 1	(A5.16) 1	(A5.24) 1	—
Bare Solid and Metal Cored (Composite) Electrodes for SAW	(A5.17) 1	(A5.23) 1	(A5.9) 1	(A5.14) 1	—	—	—	—	—	—	—	—	—	—	—
Flux Cored Electrodes for FCAW and EGW	(A5.20, A5.36) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.29, A5.36) 1, 2, 3, 4	(A5.22) 1	(A5.34) 1	—	—	(A5.15) 1	—	—	—	—	—	—
Solid or Metal Cored Electrode—Flux Combinations for SAW and ESW	(A5.17) 1, 2, 3, 4	(A5.25) 1, 2, 3, 4	(A5.23) 1, 2, 3, 4	(A5.25) 1, 2, 3, 4	—	—	—	—	(A5.15) 1	—	—	—	—	—	—
Solid and Composite Rods for OFW	(A5.2) 1	(A5.2) 1	—	—	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.10) 1, 9	(A5.7) 1	(A5.19) 1	—	—	—	—	—

(Continued)

ASME BPVC.II.C-2015

SFA-5.01M/SFA-5.01

SOUVISLOSTI

„NOREMNÍ“

Table 2
Schedule 4 or I—Required Tests^{a, b, c}

Product Type	Carbon Steel	Low-Alloy Steel	Stainless Steel	Nickel and Ni-Alloy	Surfacing	Cast Iron	Aluminum and Al-Alloy	Copper and Cu-Alloy	Magnesium and Mg-Alloy	Titanium and Ti-Alloy					
Covered Solid and Metal Cored (Composite) Electrodes for SMAW	(A5.1) 1, 2, 3, 4, 5 ^d	(A5.5) 1, 2, 3, 4, 5 ^d	(A5.4) 1	(A5.11) 1, 2, 4, 6	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.3) 1	(A5.6) 1, 4	—					
Bare Solid and Metal Cored (Composite) Rods and Electrodes for GTAW, PAW, GMAW, EGW	(A5.18, A5.36) 1, 2, 4	(A5.26) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.28, A5.36) 1, 2, 4	(A5.9) 1	(A5.14) 1	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.10) 1, 4 ^e , 9 ^e	(A5.7) 1	(A5.19) 1	(A5.16) 1	(A5.24) 1	—
Bare Solid and Metal Cored (Composite) Electrodes for SAW	(A5.17) 1	(A5.23) 1	(A5.9) 1	(A5.14) 1	—	—	—	—	—	—	—	—	—	—	—
Flux Cored Electrodes for FCAW and EGW	(A5.20, A5.36) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.26) 1, 2, 3, 4	(A5.29, A5.36) 1, 2, 3, 4	(A5.22) 1	(A5.34) 1	—	—	(A5.15) 1	—	—	—	—	—	—
Solid or Metal Cored Electrode—Flux Combinations for SAW and ESW	(A5.17) 1, 2, 3, 4	(A5.25) 1, 2, 3, 4	(A5.23) 1, 2, 3, 4	(A5.25) 1, 2, 3, 4	—	—	—	—	(A5.15) 1	—	—	—	—	—	—
Solid and Composite Rods for OFW	(A5.2) 1	(A5.2) 1	—	—	(A5.13) 1	(A5.21) 1	(A5.15) 1	(A5.10) 1, 9	(A5.7) 1	(A5.19) 1	—	—	—	—	—

(Continued)

MMA
MIG/MAG
TIG
Electrodes etc for submerged arc
Fluxes for submerged arc
Cored wires
Gas welding
Shielding gas

Classification of welding consumables									
Steel					Other materials				
Non-alloy and fine grain	High strength	Creep resistant	Stainless and heat resisting		Nickel	Copper	Aluminium	Cast iron	Titanium
EN ISO 2560	EN ISO 18275	EN ISO 3580	EN ISO 3581		EN ISO 14172	prEN ISO 17777			
EN ISO 14341	EN ISO 16834	EN ISO 21952	EN ISO 14343		EN ISO 18274	EN ISO 24373	EN ISO 18273	EN ISO 1071	EN ISO 24034
EN ISO 636									
EN ISO 14171	EN ISO 26304	EN ISO 24598							
EN ISO 14174									
EN ISO 17632	EN ISO 18276	EN ISO 17634	EN ISO 17633	EN ISO 12153				EN ISO 1071	
EN 12536 (ISO 'missing')		EN 12536 (ISO 'missing')							
EN ISO 14175									

ASME BPVC-2015

SFA-5.01M/SFA-5.01

AWS ↔ ↔ ↔ EN/ISO

ČÁST C ↔ 28 NOREM



SOUVISLOSTI VÝROBA ELEKTROD



- VÝROBA LISOVÁNÍM (VYNUCENÉ KOMPONENTY)
- VLIV NA SKLADOVÁNÍ A SUŠENÍ (CELULÓZA,..)
- ZPŮSOB LEGOVÁNÍ (VLIV PARAMETRŮ)
- ZPŮSOB LEGOVÁNÍ (NELOGICKÉ JEVY)
- VELIKOST VSÁZEK (LOT)
- VYROBENÉ ELEKTRODY:
 - DEKLARACE TYPU OBALU
 - NAPĚTÍ NAPRÁZDNO
 - PARAMETRY
 - DALŠÍ PŘESOUŠENÍ
 -



SOUVISLOSTI VÝROBA SVAŘOVACÍCH DRÁTŮ



- VÝROBA TAŽENÍM (VYNUCENÉ KOMPONENTY)
- NUTNÉ KOPROMISY (TAŽENÍ & SVAŘOVÁNÍ)
- VLIV NA SVAŘOVACÍ VLASTNOSTI
- POVRCHOVÁ ÚPRAV DRÁTU (Cu a CF)
- ZPŮSOB ADUSTÁŽE (CÍVKY x MP)
- VELIKOST VSÁZEK (LOT)
- VYROBENÉ DRÁTY :
 - ZNAČENÍ (ŠTÍTKY, RAŽENÉ, RFID,..)
 - SKLADOVÁNÍ
 - „ZNOVUPOUŽITÍ“
 - NEŘEŠÍME STRUSKU A ZAPALOVACÍ KONCE

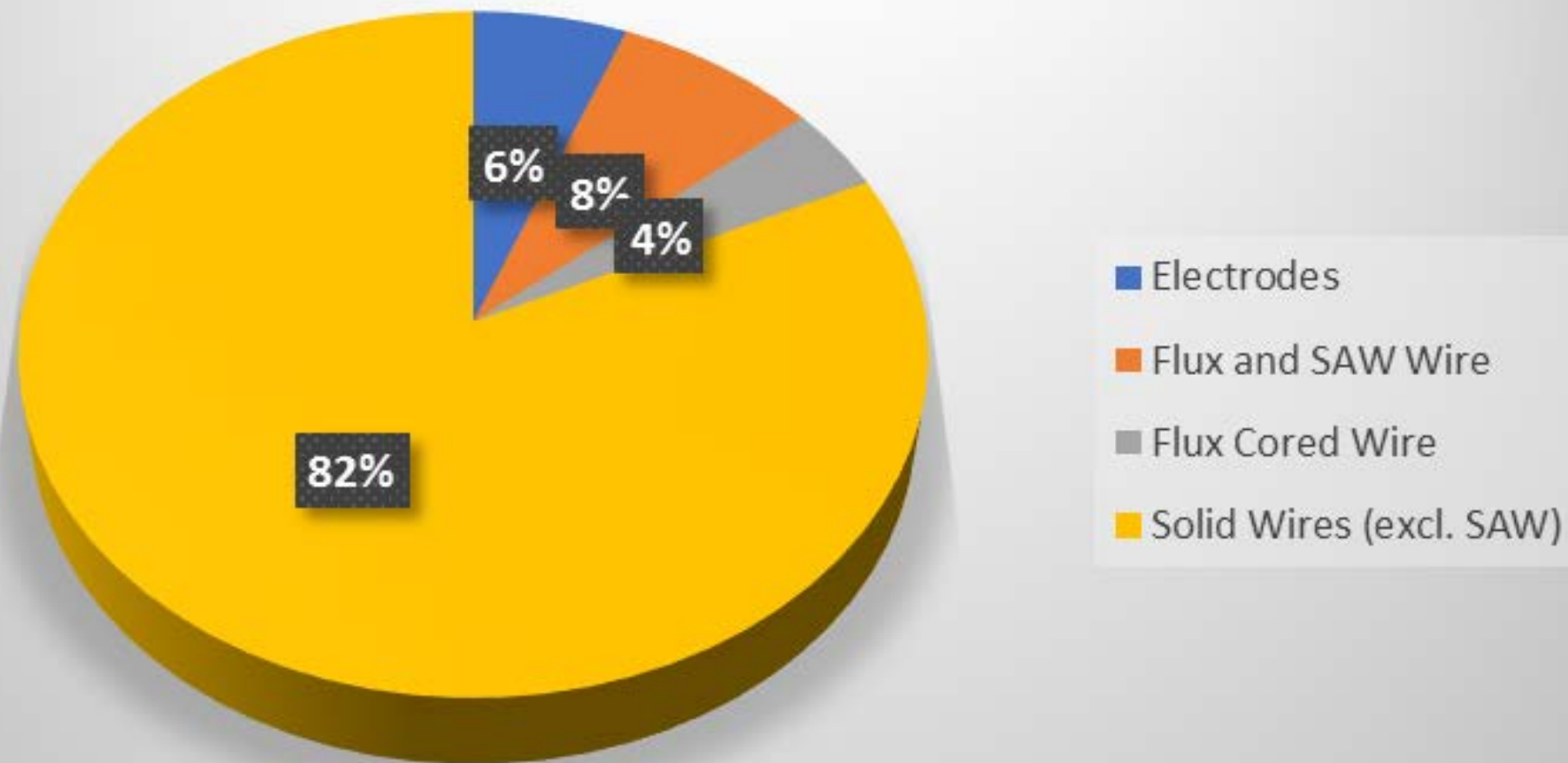


PROČ SOUVISLOSTI?

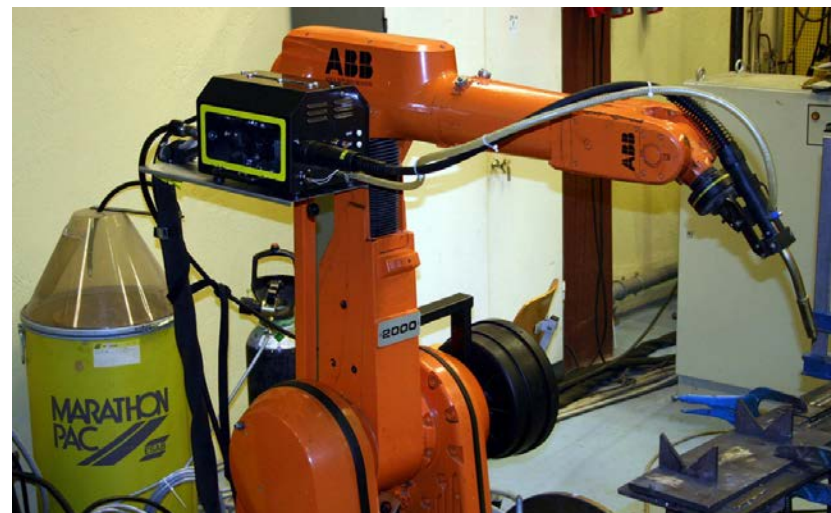


- NUTNO DOMLUVIT VŠE
- 100% SHODA
- ŘEŠENÍ ODCHYLEK
- GARANCE („HRANICE“)
- PROCESY :
 - TECHNOLOGIE
 - DOKUMENTACE
 - PERSONÁL
 -

PŘÍDAVNÉ MATERIÁLY HM % 2019 -2020

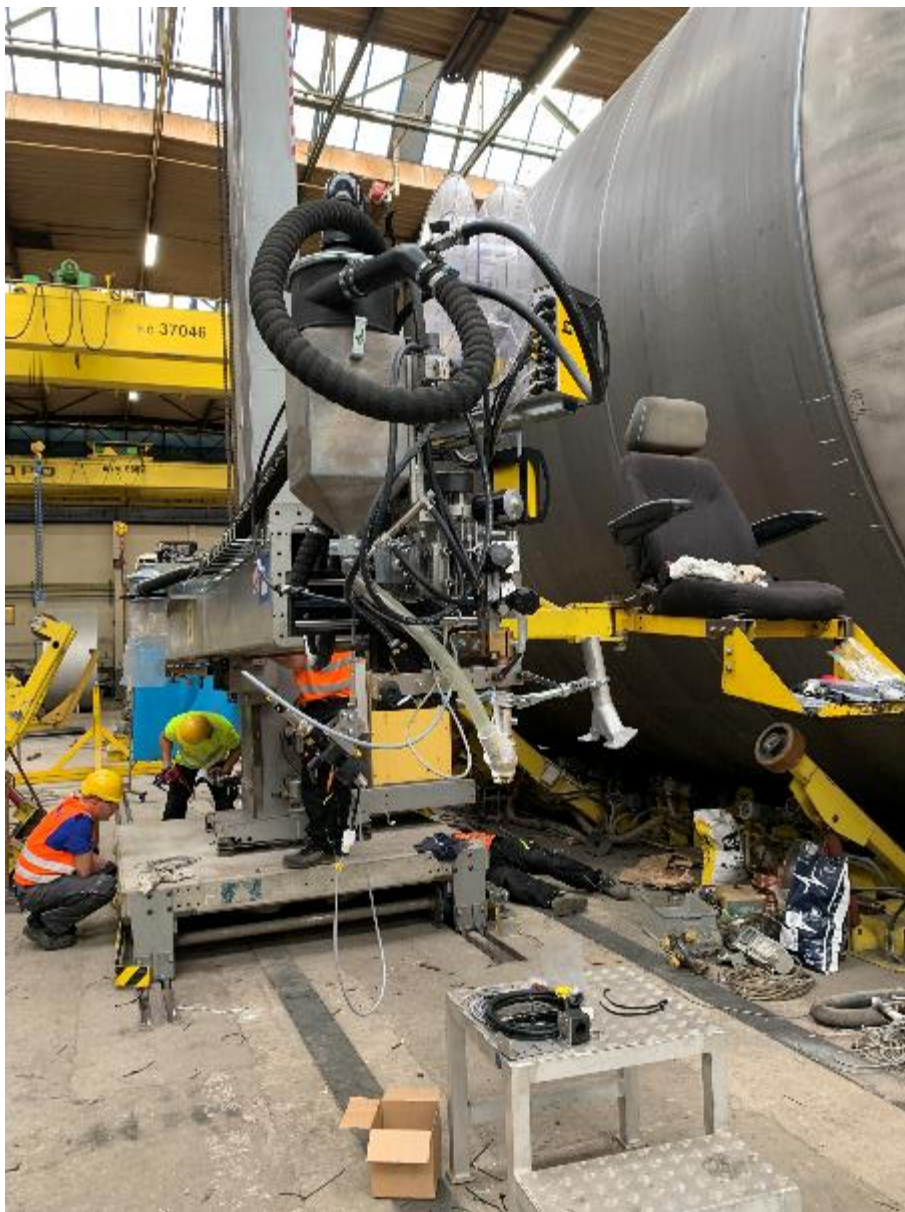


TRENDY A BUDOUCNOST?



TRENDY A BUDOUCNOST?





PŘÍKLAD AUTOMATIZACE

- SAW/SPT
- NÁDOBY PRO MÉDIA
- TL. ZM: 8 – 12 mm
- OK UTROD 12.22 3,0 mm
- OK FLUX 10.72



THE FUTURE BEGINS NOW

