Stoody HB-64

Gas Metal Arc Welding Wire

Stoody HB-64 was specifically designed for crack free hardbanding. This specially formulated wear resistant alloy produces a uniform distribution of small primary metal carbides in a martensitic matrix. HB-64 is a very casing friendly hardbanding material due to the weld deposit's low coefficient of friction as well as having excellent resistance to impact and plastic deformation.

HB-64 is characterized by a high hardness (typically 64 RC) and excellent wear resistance which is needed for open hole drillings.

The deposits are crack free when applied over new or properly rebuilt tool joints using appropriate preheats.

HB-64 may not remain crack free if applied over previously cracked, improperly cleaned or high boron containing hardbanding. Existing hardbanding of unknown composition should be removed and cleaned prior to applying HB-64 if a crack free deposit is desired. HB-64 offers improved weldability over many other hardbanding welding wires.

TYPICAL DEPOSIT CHARACTERISTICS

Abrasion Resistance	Excellent
Hardness, HRC	61 – 65
Impact Resistance	Good
Deposit Layers	2 Maximum
Surface Cross Checks	None[1]
Machinability[2]	Poor
Magnetic	
On Carbon Steel	Yes
Hot Wear Applications	1000°F (538°C)

[1] With proper use of preheat and interpass temperature.
[2] Grind deposit with soft tool steel grinding wheels to prevent burning and heat checking of the surface.

ALLOY TYPE

Small Primary Carbides in a Martensitic Matrix

TYPICAL APPLICATIONS

- Hardbanding

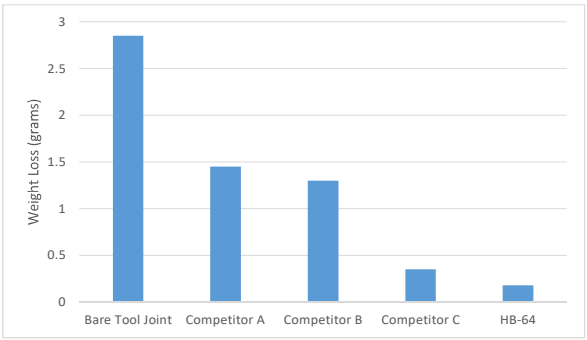
OPERATIONAL CHARACTERISTICS/WELDING PARAMETERS (DCEP)

1/16" (1.6 mm)

Current DCEP, amp	200 – 420
Voltage (volts)	27 – 31
Shielding Gas	98% Ar, Bal. 0_2 or 75% Ar, Bal. CO_2
Wire Extension, in (mm)	1/2 – 5/8 (13 – 16)
Deposition Rate, lbs/hr (kg/hr)	12 (5.4)
Wire Efficiency, %	97.0
Welding Position(s)	AWS: 1G EN: PA



ASTM G65 Wear Test (6000 Revs)





* Microstructures are parameter sensitive. Use lowest possible heat input.

STANDARD SIZES & PACKAGING

Diameter	Packaging	Part #
1/16" (1.6mm)	33 lb (15 kg) Wire Basket	12056400
1/16" (1.6 mm)	50 lb (22.7 kg) Poly Pak	12044300

PDS-SP-044
Revision 1
January 22, 2020

NOTICE - Failure to follow manufacturer's directions for use may result in equipment or material failure and void any applicable warranty. The data provided or referenced herein is provided for informational purposes only, without guarantee or warranty and represents "typical" results when Stoody products are used in accordance with internal Stoody procedures. Other tests and procedures may produce differing results. Stoody expressly disclaims any liability resulting from reliance on this data.

PROTECT YOURSELF AND OTHERS - Users should read and follow all recommended guidance on health and safety from their employer, the supplier, the manufacturer, and government authorities. These, at a minimum including the Warning Labels on the products and the Safety Data Sheets ("SDS"). The SDS and additional safety information may be found on materials or links at: Stoody.com.

© 2015 ESAB

NS-1™ LEVEL 2 PRODUCT

REVIEW NO > 2018-604
CERTIFICATE NO > 0248/21-2
APPROVAL DATE > 27th January 2021
EXPIRY DATE > 26th January 2022
REGISTERED SINCE > 27th January 2021

PRODUCT APPROVAL 2021

Stoody Company

5557 NASHVILLE ROAD, BOWLING GREEN, KY 42101.

Fearnley Procter Certify that the above company's
following Product has been reviewed and approved by a NS-1™ Technical Review Committee.

Fearnley Procter NS-1™ Edition 3 Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment Standards.

SPECIFICATIONS
> NS.03.30.00.1110 (Drill Pipe with Welded Tool Joints)

PRODUCT
> Stoody HB-64 Hardbanding Initial Application onto new Drill Pipe Tool Joints

SCOPE:

The procedure followed has been to compare the specific requirements of the relevant Fearnley Procter NS-1™ Edition 3 documentation with the submitted information, perform certain testing on the product and to conduct an assessment of the applicant's Quality Management System.

The evaluation of the application procedures for Stoody HB-64 Hardbanding onto new drill pipe tool joints has been performed in compliance with the general requirements and recommendations as stipulated in NS-1™ Supplementary Requirements, NS.03.30.00.1110 (Rev. 11) Section 5.0, and Sub-Specification 90.1, 90.3 and 160. The evaluation of the reapplication process for Stoody HB-64 Hardbanding over itself and associated testing as noted below was also performed as part of this product approval.

The following data was supplied and tests performed by Stoody Company for Fearnley Procter under this approval:
1) Micro Hardness Test (across weld metal, HAZ plus base metal) 2) Hardbanding Adhesion Test Results 3) Welding Procedures/Guidelines 4) Inspection Guidelines 5) Acceptance/Rejection Criteria 6) Casing Wear Results 7) Chemical analysis of applied hardband wire

As a result of this review, Stoody Company has been granted the approval for application of Stoody HB-64 onto new drill pipe tool joints and deemed suitable for service when applied as per the processes, procedures reviewed and the requirements of NS-1™.

Fearnley Procter Group
Non-productive-time Solutions

Issued By
Kevin Fearnley
Chairman NS-1™ Technical Review Committee

REFERENCE DOCUMENTS: Stoody Company Hardbanding Procedure Manual Rev 3.1, effective date 3rd January 2021.

NOTA BENE: This certificate relates solely to the Procedure Qualification Record of the Organisation identified above and should not be interpreted as implying that all or any other applicators of this product are competent to do so. Organisations applying the above Hardbanding are required to qualify their own Welding Procedure Specification by means of a Procedure Qualification Record and maintain Welder Performance Qualification in accordance with Fearnley Procter NS-1™ Edition 3 requirements.

To maintain validity during the said period the above named Company must maintain a valid subscription to and comply with the Fearnley Procter NS-1™ Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment.
Certificates and Levels of Approval can be verified at **www.fearnleyprocter.com**

NS-1™ LEVEL 2 PROCESS

REVIEW NO > 2018-604
CERTIFICATE NO > 0249/21-2
APPROVAL DATE > 27th January 2021
EXPIRY DATE > 26th January 2022
REGISTERED SINCE > 27th January 2021

PROCESS APPROVAL 2021

Stoody Company

5557 NASHVILLE ROAD, BOWLING GREEN, KY 42101.

The above Company has demonstrated through Procedure Qualification Records that their Welding Procedure Specifications, for the welding process and scope of applications below, are capable of providing the required properties specified by the Company.

Qualification is in conformance with the requirements of:

Fearnley Procter NS-1™ Edition 3 Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment Standards.

SPECIFICATIONS
> NS.03.30.00.1110 (Drill Pipe with Welded Tool Joints)

SERVICE / PROCESS
> Re-application of Stoody HB-64 Hardbanding over Stoody HB-64 Hardbanding

SCOPE:
The evaluation of the application procedures for Stoody HB-64 Hardbanding on drill pipe tool joints for the re-application over itself has been performed in compliance with the general requirements and recommendations as stipulated in NS-1™ Supplementary Requirements, NS.03.30.00.1110 (Rev. 11) Section 5.0, and Sub-Specification 90.1, 90.3 and 160.

The following data was supplied and tests performed by Stoody Company for Fearnley Procter under this approval: 1) Micro Hardness Test (across weld metal, HAZ plus base metal) 2) Hardbanding Adhesion Test Results 3) Welding Procedures/Guidelines 4) Inspection Guidelines
5) Acceptance/Rejection Criteria

Fearnley Procter Group
Non-productive-time Solutions

Issued By
Kevin Fearnley
Chairman NS-1™ Technical Review Committee



REFERENCE DOCUMENTS: Stoody Company Hardbanding Procedure Manual Rev 3.1, effective date 3rd January 2021.

NOTA BENE: This certificate relates solely to the Procedure Qualification Record of the Organisation identified above and should not be interpreted as implying that all or any other applicators of this product are competent to do so. Organisations applying the above Hardbanding are required to qualify their own Welding Procedure Specification by means of
a Procedure Qualification Record and maintain Welder Performance Qualification in accordance with Fearnley Procter NS-1™ Edition 3 requirements.

To maintain validity during the said period the above named Company must maintain a valid subscription to and comply with the Fearnley Procter NS-1™ Quality and Inspection Requirements for New and Refurbished Drilling and Well Completion Equipment.
Certificates and Levels of Approval can be verified at **www.fearnleyprocter.com**