

LINKS

Weldless Links
Perfection Links



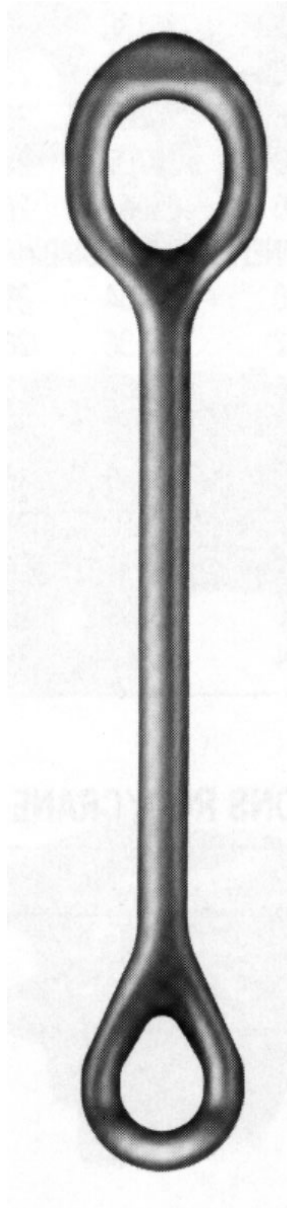
Original Instructions
Keep for future use

REFERENCE Links	REFERENCE DESCRIPTION Weldless Links and Perfection Links
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NATIONAL OILWELL VARCO



User's Manual

Weldless Links

Perfection Links

REFERENCE Link	REFERENCE DESCRIPTION Links
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NATIONAL OILWELL VARCO

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Revision History

Revision	Change Description
-	First Issue
A	New style
B	Corrections
C	Corrections
D	Info added
E	Corrections
F	Changes all over the manual
G	Correction
H	Addition
I	Not released
J	Corrections
K	Update

Change Description

K	14-10-2020	Drops data added + various changes part numbers + data
J	19-06-2018	Editorial corrections
I		
H	14-06-2018	Chapter Installation added
G	05-12-2017	Chapter specifications: Varco type E/S 350 links 26940 changed to NOT fitting on 500 T E/S + various changes
F	31-12-2015	Added new part numbers, small changes
E	21.11.2011	Corrected link compatibility
E	21.11.2011	Added information about allowable twist & wear data
D	01.06.2009	Added Link connectors info
C	18.05.2009	Added wear size Perfection links
B	28.10.2008	Added Link connector info
B	30.06.2008	Page 14: The SLX 5.1/2" - 24.1/2" link DOES fit in 500 tons 3.1/2" links, pn 25469
A	26.03.2007	Data updated; part numbers, inspection, handle
-	12.03.2007	Issued for Implementation
Rev	Date	Reason for issue

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General Information

Instructions

Original Instructions are published in English; in the event the end-user may wish to obtain a translation of these in the official language of the country in which the machinery is to be used please contact your local NOV representative. Please note that this service may not be free of charge. Original Instruction can be downloaded from www.NOV.com/drilling

Оригиналните инструкции са публикувани на английски език; в случай, че крайният потребител желае да получи превод на тези инструкции на официалния език на държавата, в която се използва оборудването, моля, свържете се с вашия местен представител на NOV. Моля, имайте предвид, че тази услуга може да не е безплатна. Оригиналните инструкции могат да бъдат изтеглени от: www.NOV.com/drilling

Původní návod je zveřejněn v angličtině; pokud si koncový uživatel přeje získat překlad návodu v úředním jazyce země, ve které se zařízení bude používat, může se obrátit na místního zástupce společnosti NOV. Upozorňujeme, že tato služba nemusí být zdarma. Původní návod je k dispozici ke stažení na adrese www.NOV.com/drilling

Juhendi originaal on avaldatud inglise keeles. Kui lõppkasutaja soovib tõlget selle riigi ametlikus keeles, kus seadmeid kasutatakse, palume pöörduda NOV-i kohaliku esindaja poole. Palume silmas pidada, et see teenus ei pruugi olla tasuta. Juhendi originaali saab alla laadida veebisaidilt www.NOV.com/drilling.

Instrukcijų originalas yra skelbiamas anglų kalba. Jei galutinis vartotojas norėtų gauti šių instrukcijų vertimą į šalies, kurioje įrengimai turi būti naudojami, oficialiąją kalbą, reikėtų kreiptis į vietinį NOV atstovą. Prašome atkreipti dėmesį, kad ši paslauga gali būti mokama. Instrukcijų originalą galima parsisiųsti iš tinklalapio www.NOV.com/drilling

Šo norādījumu oriģinālvaloda ir angļu valoda; gadījumā, ja jūs kā gala lietotājs vēlaties saņemt norādījumu tulkojumu tās valsts oficiālajā valodā, kurā šī mašīna tiks lietota, lūdzu, sazinieties ar vietējo „NOV” pārstāvi. Lūdzu, ņemiet vērā, ka šis var nebūt bezmaksas pakalpojums. Norādījumus oriģinālvalodā varat lejupielādēt no vietnes www.NOV.com/drilling

A használati utasítások eredetileg angol nyelven kerülnek kiadásra. Amennyiben a végfelhasználó meg szeretne kapni azon ország hivatalos nyelvén készült fordításukat, ahol a gépet használni fogják, akkor kérjük, vegye fel a kapcsolatot a NOV helyi képviselőjével. Kérjük, vegye figyelembe, hogy ezt a szolgáltatást esetleg nem tudjuk díjmentesen nyújtani. Az eredeti használati utasítás a www.NOV.com/drilling oldalról tölthető le.

Oryginalne instrukcje zostały wydane w języku angielskim. Aby uzyskać tłumaczenie tych instrukcji na język kraju, w którym urządzenie ma być używane, należy skontaktować się z lokalnym przedstawicielem firmy NOV. Należy pamiętać, że taka usługa jest płatna. Oryginalną instrukcję można pobrać na stronie www.NOV.com/drilling

As Instruções Originais são publicadas em inglês; se o utilizador final pretender obter uma tradução destas instruções no idioma oficial do país onde a maquinaria vai ser utilizada, deverá contactar o representante local da NOV. Chamamos a atenção para o facto de este serviço poder não ser gratuito. As Instruções Originais podem ser transferidas a partir do site www.NOV.com/drilling

Instrucțiunile originale sunt publicate în limba engleză; în eventualitatea în care utilizatorul final dorește să obțină o traducere a acestora în limba oficială a țării în care se vor folosi utilajele, vă rugăm să luați legătura cu reprezentantul NOV local. Vă rugăm să rețineți că este posibil ca acest serviciu să nu fie gratuit. Instrucțiunile originale pot fi descărcate de pe www.NOV.com/drilling

Pôvodný návod je vydaný v anglickom jazyku. Ak si koncový používateľ želá získať preklad v úradnom jazyku štátu, v ktorom sa stroj bude používať, obráťte sa na miestneho zástupcu spoločnosti NOV. Upozorňujeme, že táto služba nemusí byť bezplatná. Originálny návod je k dispozícii na prevzatie zo stránky www.NOV.com/drilling.

Originalna navodila so objavljena v angleščini; če končni uporabnik želi prevod teh navodil v uradnem jeziku države, kjer se bodo stroji uporabljali, se obrnite na lokalnega predstavnika podjetja NOV. Ta storitev mogoče ne bo brezplačna. Originalna navodila lahko prenesete s spletne strani www.NOV.com/drilling

De originale anvisninger er udgivet på engelsk. Måtte slutbrugeren ønske at få en oversættelse af disse i det officielle sprog af det land, hvor maskineriet skal bruges, henvises der til den lokale NOV-repræsentant. Bemærk venligst at denne service måske ikke er gratis. De originale anvisninger kan downloades fra www.NOV.com/drilling

Die Originalanleitung erscheint in englischer Sprache. Wünscht der Endverbraucher eine Übersetzung dieser Anleitung in der offiziellen Sprache des Landes, in dem die Maschine benutzt werden soll, dann wenden Sie sich bitte an Ihren örtlichen NOV-Vertreter. Bitte beachten Sie, dass diese Dienstleistung möglicherweise nicht kostenlos ist. Die Originalanleitung können Sie unter folgendem Link herunterladen: www.NOV.com/drilling.

Las instrucciones originales son publicadas en inglés. En el caso de que el usuario final quiera obtener una traducción en el idioma oficial del país donde la maquinaria será utilizada, debe ponerse en contacto con su representante local de NOV. Tenga en cuenta que este servicio puede conllevar gastos. Es posible descargar las instrucciones originales desde www.NOV.com/drilling.

Alkuperäiset ohjeet on julkaistu englannin kielellä; mikäli loppukäyttäjä haluaa saada niiden käännöksen sen maan virallisella kielellä, jossa konetta käytetään, on otettava yhteyttä paikalliseen NOV-edustajaan. On mahdollista, että tästä palvelusta peritään maksu. Alkuperäiset ohjeet voi ladata osoitteesta www.NOV.com/drilling

Les consignes originales sont publiées en anglais; dans le cas où l'utilisateur final demande une traduction de ces consignes vers la langue officielle du pays dans lequel la machine doit être utilisée, veuillez contacter le représentant NOV sur place. Le service de traduction peut être payant. Les consignes originales peuvent être téléchargées du site www.NOV.com/drilling.

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De oorspronkelijke instructies zijn in het Engels gepubliceerd. Als de eindgebruiker een vertaling van de instructies wil ontvangen in de officiële taal van het land waar de machine zal worden gebruikt, neem dan contact op met uw plaatselijke NOV vertegenwoordiger. Let op dat er kosten aan deze service verbonden kunnen zijn. De oorspronkelijke instructies kunnen worden gedownload op www.NOV.com/drilling.

Originalinstruktionerna publiceras på engelska. Om slutanvändaren önskar en översättning av dessa till det officiella språket i det land där utrustningen ska användas, kontakta den lokala NOV-representanten. Observera att denna tjänst eventuellt inte är kostnadsfri. Originalinstruktionerna kan laddas ned från www.NOV.com/drilling

Special information

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Please note that this manual may contain warnings about procedures which could damage equipment, make it unsafe, or cause PERSONAL INJURY. Please understand that these warnings cannot cover all conceivable ways in which service (whether or not recommended by NOV) might be done, or the possible hazardous consequences of each conceivable ways. Anyone using service procedures or tools, whether or not recommended by NOV, must be thoroughly satisfied that neither personal safety nor equipment safety will be jeopardized.

All information contained in this manual is based upon the latest product information available at any time of printing. We reserve the right to make changes at any time without notice.

Intended audience

This manual is intended for use by field engineering, installation, operation and repair personnel. Every effort has been made to ensure the accuracy of the information contained herein. NOV, Varco® 2020, NOV LP, will not be held liable for errors in this material, or for consequences arising from misuse of this material.

Conventions Notes, Cautions, and Warnings

Notes, cautions, and warnings provide readers with additional information and advise the reader to take specific action to protect personnel from potential injury or lethal conditions. They may

also inform the reader of actions necessary to prevent equipment damage. Please pay close attention to these advisories

Note:



The note symbol indicates that additional information is provided about the current topics.

Caution:



The caution symbol indicates that potential damage to equipment or injury to personnel exists. Follow instructions explicitly. Extreme care should be taken when performing operations or procedures preceded by this caution symbol.

Warning:



The warning symbol indicates a definite risk of equipment damage or danger to personnel. Failure to observe and follow proper procedures could result in serious or fatal injury to personnel, significant property loss, or significant equipment damage.

Illustrations

Illustrations (figures) provide a graphical representation of equipment components or screen snapshots for use in identifying parts or establishing nomenclature, and may or may not be drawn to scale.

For component information specific to your application, see the technical drawings included with your NOV documentation.

Safety Requirements

NOV equipment is installed and operated in a controlled drilling rig environment involving hazardous situations. Proper maintenance is important for safe and reliable operation. Procedures outlined in NOV manuals are the recommended methods of performing operations and maintenance.



Caution: To avoid injury to personnel or equipment damage, carefully observe requirements outlined in this section.

Personnel Training

All personnel performing installation, operations, repair, or maintenance procedures on the equipment, or those in the vicinity of the equipment, should be trained on rig safety, tool operation, and maintenance to ensure their safety.



Caution: Personnel should wear protective gear during installation, maintenance, and certain operations.

Recommended Tools

Service operations may require the use of tools designed specifically for the purpose described. NOV recommends that only those tools specified be used when stated. Ensure that personnel and equipment safety are not jeopardized when following service procedures or using tools not specifically recommended by NOV.

General System Safety Practices

The equipment discussed in this manual may require or contain one or more utilities, such as electrical, hydraulic, pneumatic, or cooling water.

⚠ *Caution: Read and follow the guidelines below before installing equipment or performing maintenance to avoid endangering exposed persons or damaging equipment.*

- ❑ Isolate energy sources before beginning work.
- ❑ Avoid performing maintenance or repairs while the equipment is in operation.
- ❑ Wear proper protective equipment during equipment installation, maintenance, or repair.

Replacing Components

- ❑ Verify that all components (such as cables, hoses, etc.) are tagged and labeled during assembly and disassembly of equipment to ensure correct installment.
- ❑ Replace failed or damaged components with genuine NOV parts. Failure to do so could result in equipment damage or injury to personnel.

Routine Maintenance

Equipment must be maintained on a routine basis. See the service manual for maintenance recommendations.

⚠ *Caution: Failure to conduct routine maintenance could result in equipment damage or injury to personnel.*

Proper Use of Equipment

NOV equipment is designed for specific functions and applications, and should be used only for its intended purpose.

Lifting

The lifting procedures should carefully be observed and carried out according to the manual.

Link restrictions

The Link is designed to be used as an connecting element between Top Drive Systems and elevators, or between Hooks and elevators, and must not be used for any other purpose.

Design safety factor

The design-safety factor and design verification of the links is in accordance with requirements of API specification 8A, 8C PSL 1 or 8C PSL2. During manufacturing the link is proof load tested to 1.5 times the rated load.

Safe Working Load

Per API Specification 8C – The operator of the equipment shall be responsible for determination of the safe working load for any hoisting operation. The Safe working load is equal to the design load minus the dynamic load.

Limited warranty

The warranty will be void if the Link were either:

- ❑ unauthorized modified, repaired or serviced
- ❑ replacement parts not manufactured by NOV were utilized
- ❑ not properly stored or maintained
- ❑ any welding is carried out

Identification numbers

You will find the serial number of the tool stamped into the shank near the small eye.

CE marking

The link complies with the Machinery Directive 2006/42/EC (lifting accessories).

The marking is as follows:



Dropped Object Prevention (DROPS)

Dropped objects pose the number one risk of serious injuries, fatalities and equipment damage in the oil and gas industry. NOV is committed to the mitigation of dropped objects through equipment design. For the equipment owner or operator, mitigation is carried out by use of the recommended maintenance guidelines. Reference document D441000342-SPC-001.

NOV equipment is designed to incorporate reasonable primary and secondary retention with the intention of providing enhanced safety. However, these methods alone cannot prevent dropped objects without the awareness of rig personnel. Equipment should be inspected on a regular basis as recommended per NOV Instruction Manuals. This includes (but is not limited to) replacement of worn, damaged or missing components with NOV-approved parts.

Critical or mandatory inspections of equipment following unplanned events, such as rough drilling or jarring, is critical to the prevention of dropped objects, and should be performed as recommended in NOV Instruction Manuals.

Additional information on DROPS is available at the following websites:

- ❑ Internal NOV DROPS site with many documents intended for internal NOV use and some intended for external use, Inside.NOV Global DROPS
- ❑ The industry DROPS sites:
 - ❑ <http://www.dropsonline.org>
 - ❑ <http://www.samarbeidforsikkerhet.no>
- ❑ Alternatively contact one of the DROPS Team-members listed on the NOV DROPS site at: DROPSteam@nov.com

Customers should also be aware of the latest product bulletins, safety alerts, other documents relating to the safety and performance of their equipment including "Guide line for secondary retention and dropped object prevention", document D441000342-SPC-001, documents can all be accessed by signing in to your MYNOV account at MyNOV Portal and then searching with the Product Bulletin Search available below the heading 'Application Groups'.

For information on registering, please visit Registration for MyNOV portal.

General specifications

Description

Weldless Links

Weldless links are forged from a single billet of high strength alloy steel and heat treated to provide maximum strength and toughness. Additional section is added in critical wear areas for extended life. NOV Weldless Links are available in 250, 350, 500, 750, 1,000, 1,250 and 1,500 sTon rating.

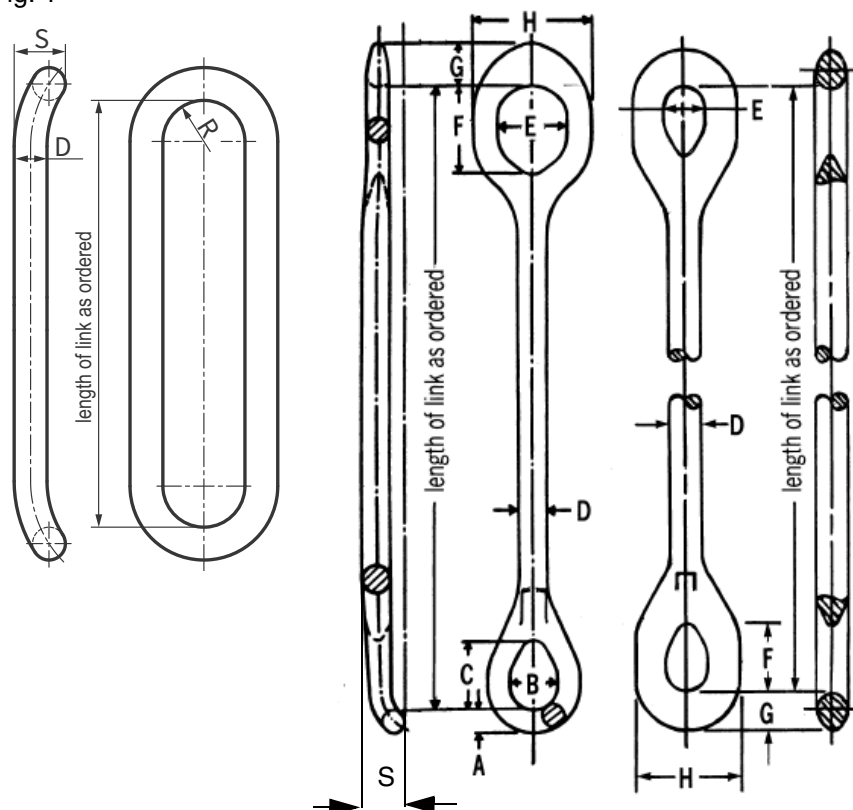
Perfection Links

Perfection links are designed for light loads. They are made through forging, bending and electric welding of high quality steel bar stock, which is then heat-treated and magnafluxed. For loads which exceed capacity ratings of perfection links NOV Weldless links are recommended.

Intended usage

The links are designed to hang elevators from Top Drive Systems, Hooks, Becketts and Link Adapters.

Fig. 1



Perfection links 100 sTon

Weldless links 250 - 500 sTon

Weldless links 750 - 1,500 sTon

Technical specifications*

Link type	Dim.	A	B	C	D Shank	E	F	G	H	R	S
100 [sTon]	[inches]	n/a	n/a	n/a	2	n/a	n/a	n/a	n/a	2.5	3.12
90 Tonne	[mm]	n/a	n/a	n/a	50.8	n/a	n/a	n/a	n/a	63.5	79.3
250 sTon	[inches]	2.44	5.5	7.5	2.88	9.5	12	5	15.3	n/a	4.35
227 Tonne	[mm]	62	140	191	73	241	305	127	389	n/a	110.49
350 sTon	[inches]	2.94	5.62	8.8	3.63	9.5	10.5	5	15.3	n/a	5.1
318 Tonne	[mm]	75	143	223	92	241	267	127	389	n/a	129.54
500 sTon	[inches]	3.62	6.5	10.2	4.5	9.5	12.2	6	17	n/a	6.5
454 Tonne	[mm]	92	165	259	114	241	310	152	432	n/a	165.1
750 sTon	[inches]	7.55	10.25	14.63	5.75	10.25	14.63	7.4	23	n/a	n/a
680 Tonne	[mm]	192	260	371	146	260	371	188	584	n/a	n/a
1,000 sTon	[inches]	8.38	12.5	17.45	5.75	12.5	17.45	8.38	28.75	n/a	n/a
907 Tonne	[mm]	213	318	94	146	318	94	213	730	n/a	n/a
1,250 sTon	[inches]	8.38	12.5	17.45	5.75	12.5	17.45	8.38	28.75	n/a	n/a
1,134 Tonne	[mm]	213	318	94	146	318	94	213	730	n/a	n/a
1,500 [sTon]	[inches]	10.56	12.75	17.5	6 x 7	12.75	17.5	10.56	30	n/a	n/a
1,361 Tonne	[mm]	268	324	445	Oval 152-178	324	445	268	743	n/a	n/a

* The dimensions are nominal and actual dimensions will vary slightly due to manufacturing tolerances. All API contact radius dimensions are manufactured to API specifications, see Fig. 1

Part numbers perfection links

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Weight per Set [lbs/kg]
200450Y130	10758496-001	100 / 89	30 / 762	49 / 108
200450Y136	10137376-001	100 / 89	36 / 914	58 / 128
200450Y142	10137376-014	100 / 89	42 / 1,067	67 / 148
200450Y148	10137376-020	100 / 89	48 / 1,219	76 / 168
200450Y160	10137376-026	100 / 89	60 / 1,524	95 / 208

Part numbers weldless links

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Weight per Set [lbs/kg]
16363Y1060	10115275-012	250 / 226.8	60 / 1,524	500 / 227
16363Y1072	10115275-017	250 / 226.8	72 / 1,829	548 / 249
16363Y1084	10115275-019	250 / 226.8	84 / 2,134	596 / 270
16363Y1096	10115275-018	250 / 226.8	96 / 2,438	644 / 292
16363Y1108	10115275-001	250 / 226.8	108 / 2,743	692 / 314
16363Y1120	10115275-020	250 / 226.8	120 / 3,048	740 / 336
16363Y1132	10115275-013	250 / 226.8	132 / 3,353	788 / 357
16363Y1144	10115275-055	250 / 226.8	144 / 3,658	840 / 381
16363Y1168	10115275-014	250 / 226.8	168 / 4,267	932 / 423
16363Y1180	10115275-016	250 / 226.8	180 / 4,572	980 / 445
16363Y1192	10115275-058	250 / 226.8	192 / 4,877	1028 / 466
16363Y1216	10115275-059	250 / 226.8	216 / 5,486	1124 / 510
16363Y1360	10115275-061	250 / 226.8	360 / 9,144	1700 / 771
16363Y1480	10115275-063	250 / 226.8	480 / 12,192	2180 / 989
16363Y1540	10115275-066	250 / 226.8	540 / 13,716	2420 / 1098
26940Y1048	10490416-195	350 / 317.5	48 / 1,219	546 / 248
26940Y1060	10490416-749	350 / 317.5	60 / 1,524	612 / 278
26940Y1072	10490416-728	350 / 317.5	72 / 1,829	678 / 308
26940Y1084	10490416-774	350 / 317.5	84 / 2,134	744 / 338
26940Y1096	10490416-730	350 / 317.5	96 / 2,438	810 / 367
26940Y1108	10490416-773	350 / 317.5	108 / 2,743	876 / 397
26940Y1120	10490416-776	350 / 317.5	120 / 3,048	942 / 427
26940Y1132	10490416-778	350 / 317.5	132 / 3,353	1,008 / 457
26940Y1144	10490416-755	350 / 317.5	144 / 3,657	1,074 / 487
26940Y1150	10490416-735	350 / 317.5	150 / 3,810	1,107 / 502
26940Y1156	10490416-146	350 / 317.5	156 / 3,962	1,140 / 517
26940Y1160	10490416-754	350 / 317.5	160 / 4,064	1,162 / 527
26940Y1168	10490416-746	350 / 317.5	168 / 4,267	1,190 / 541
26940Y1180	10490416-747	350 / 317.5	180 / 4,572	1,255 / 571
26940Y1192	10490416-736	350 / 317.5	192 / 4,877	1,320 / 600
26940Y1200	10490416-152	350 / 317.5	200 / 5,080	1,363 / 618
26940Y1216	10490416-738	350 / 317.5	216 / 5,486	1,450 / 659
26940Y1240	10490416-739	350 / 317.5	240 / 6,096	1,580 / 718
26940Y1252	10490416-740	350 / 317.5	252 / 6,001	1,668 / 757
26940Y1264	10490416-741	350 / 317.5	264 / 6,706	1,770 / 800
26940Y1290	10490416-752	350 / 317.5	290 / 7,366	1,944 / 882
26940Y1300	10490416-158	350 / 317.5	300 / 7,620	1,931 / 776

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Appr. weight per Set [lbs/kg]
26940Y1350	10490416-777	350 / 317.5	350 / 8,890	2,180 / 988
26940Y1360	10490416-750	350 / 317.5	360 / 9,144	2,235 / 1,014
26940Y1480	10490416-743	350 / 317.5	480 / 12,192	2,885 / 1,306
26940Y1540	10490416-167	350 / 317.5	540 / 13,716	3,187 / 1,446
26940Y1600	10490416-171	350 / 317.5	600 / 15,240	3,408 / 1,546

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Appr. weight per Set [lbs/kg]
25469Y1072	10490415-324	500 / 453.6	72 / 1,829	705 / 320
25469Y1080	10490415-252	500 / 453.6	80 / 2,032	1,062 / 482
25469Y1084	10490415-253	500 / 453.6	84 / 2,134	1,098 / 498
25469Y1096	10490415-320	500 / 453.6	96 / 2,438	1,206 / 502
25469Y1108	10490415-031	500 / 453.6	108 / 2,743	1,314 / 596
25469Y1120	10490415-311	500 / 453.6	120 / 3,048	1,422 / 645
25469Y1132	10490415-998	500 / 453.6	132 / 3,353	1,530 / 694
25469Y1144	10490415-064	500 / 453.6	144 / 3,657	1,638 / 743
25469Y1160	10490415-083	500 / 453.6	160 / 4,064	1,782 / 808
25469Y1168	10490415-321	500 / 453.6	168 / 4,267	1,854 / 841
25469Y1180	10490415-156	500 / 453.6	180 / 4,572	1,962 / 890
25469Y1190	10490415-575	500 / 453.6	190 / 4,826	2,052 / 931
25469Y1192	10490415-127	500 / 453.6	192 / 4,826	2,070 / 939
25469Y1216	10490415-138	500 / 453.6	216 / 5,486	2,286 / 1,037
25469Y1226	10490415-326	500 / 453.6	226 / 5,740	2,376 / 1,078
25469Y1240	10490415-327	500 / 453.6	240 / 6,096	2,502 / 1,135
25469Y1244	10490415-293	500 / 453.6	244 / 6,198	2,538 / 1,151
25469Y1250	10490415-148	500 / 453.6	250 / 6,350	2,592 / 1,176
25469Y1252	10490415-296	500 / 453.6	252 / 6,401	2,610 / 1,184
25469Y1264	10490415-195	500 / 453.6	264 / 6,706	2,718 / 1,233
25469Y1312	10490415-196	500 / 453.6	312 / 7,925	3,150 / 1,429
25469Y1360	10490415-333	500 / 453.6	360 / 9,144	3,582 / 1,625
25469Y1372	10490415-329	500 / 453.6	372 / 9,449	3,690 / 1,674
25469Y1384	10490415-004	500 / 453.6	384 / 9,754	3,798 / 1,723
25469Y1396	10490415-005	500 / 453.6	396 / 10,058	3,906 / 1,771
25469Y1408	10490415-006	500 / 453.6	408 / 10,363	4,014 / 1,821
25469Y1480	10490415-330	500 / 453.6	480 / 12,192	4,662 / 2,115
25469Y1504	10490415-014	500 / 453.6	504 / 12,802	4,840 / 2,195
25469Y1540	10490415-331	500 / 453.6	540 / 13,716	5,202 / 2,360
25469Y1552	10490415-278	500 / 453.6	552 / 14,021	5,310 / 2,409
25469Y1600	10490415-309	500 / 453.6	600 / 15,240	5,742 / 2,605
25469Y1660	10490415-332	500 / 453.6	660 / 16,754	6,282 / 2,849

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Appr. weight per Set [lbs/kg]
16143Y1096	10490414-040	750 / 680.4	96 / 2,438	3,038 / 1,378
16143Y1120	10490414-573	750 / 680.4	120 / 3,048	3,422 / 1,552
16143Y1132	10490414-071	750 / 680.4	132 / 3,353	3,614 / 1,639
16143Y1144	10490414-078	750 / 680.4	144 / 3,657	3,806 / 1,726
16143Y1156	10490414-044	750 / 680.4	156 / 3,962	3,998 / 1,814
16143Y1160	10490414-075	750 / 680.4	160 / 4,064	4,062 / 1,843
16143Y1180	10490414-096	750 / 680.4	180 / 4,572	4,382 / 1,988
16143Y1192	10490414-079	750 / 680.4	192 / 4,877	4,574 / 2,075
16143Y1200	10490414-081	750 / 680.4	200 / 5,080	4,702 / 2,133
16143Y1216	10490414-001	750 / 680.4	216 / 5,486	4,958 / 2,249
16143Y1240	10490414-085	750 / 680.4	240 / 6,096	5,342 / 2,423
16143Y1252	10490414-053	750 / 680.4	252 / 6,401	5,534 / 2,510
16143Y1264	10490414-086	750 / 680.4	264 / 6,706	5,726 / 2,597
16143Y1267	10490414-056	750 / 680.4	267 / 6,401	5,774 / 2,619
16143Y1276	10490414-058	750 / 680.4	276 / 7,010	5,918 / 2,684
16143Y1300	10490414-060	750 / 680.4	300 / 7,620	6,302 / 2,859
16143Y1360	10140414-088	750 / 680.4	360 / 9,144	7,262 / 3,294
16143Y1480	10490414-063	750 / 680.4	480 / 12,192	9,182 / 4,165
16143Y1660	10490414-065	750 / 680.4	660 / 16,764	12,062 / 5,471
70101Y1200	10044677-033	1,000 / 907.2	200 / 5,080	5,100 / 2,315
M614000320Y1096	Contact NOV	1,250 / 1,133	96 / 2,438	4,210 / 1,910
M614000320Y1108	Contact NOV	1,250 / 1,133	108 / 2,743	4,386 / 1,990
M614000320Y1132	Contact NOV	1,250 / 1,133	132 / 3,353	4,739 / 2,150
M614000320Y1144	10392589-001	1,250 / 1,133	144 / 3,657	4,915 / 2,230
M614000320Y1180	10392589-023	1,250 / 1,133	180 / 4,572	5,444 / 2,469
M614000320Y1182	Contact NOV	1,250 / 1,133	182 / 4,623	5,473 / 2,483
M614000320Y1200	10392589-008	1,250 / 1,133	200 / 5,080	5,738 / 2,602
M614000320Y1216	10392589-025	1,250 / 1,133	216 / 5,486	6,003 / 2,364
M614000320Y1220	Contact NOV	1,250 / 1,133	220 /	6,032 / 2,737
M614000320Y1240	10392589-012	1,250 / 1,133	240 / 6,096	6,326 / 2,870
M614000320Y1246	10392589-027	1,250 / 1,133	246 / 6,248	Contact NOV
M614000320Y1264	10392589-029	1,250 / 1,133	264 / 6,706	6,679 / 3,030
M614000320Y1360	Contact NOV	1,250 / 1,133	360 / 9,144	8,090 / 3,670
10730284-001	10730284-001	1, 500 / 1,360	096 / 2,438	3,265 / 1,481
10730284-021	10730284-021	1, 500 / 1,360	096 / 2,438	3,265 / 1,481
10730284-002	10730284-002	1, 500 / 1,360	108 / 2,743	3,424 / 1,553
10730284-022	10730284-022	1, 500 / 1,360	108 / 2,743	3,424 / 1,553
10730284-003	10730284-003	1, 500 / 1,360	132 / 3,353	3,742 / 1,697
10730284-023	10730284-023	1, 500 / 1,360	132 / 3,353	3,742 / 1,697
10730284-004	10730284-004	1, 500 / 1,360	144 / 3,657	3,900 / 1,769
10730284-024	10730284-024	1, 500 / 1,360	144 / 3,657	3,900 / 1,769
10730284-005	10730284-005	1, 500 / 1,360	180 / 4,572	4,550 / 2,063
10730284-025	10730284-025	1, 500 / 1,360	180 / 4,572	4,550 / 2,063

Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Appr. weight per Set [lbs/kg]
10730284-006	10730284-006	1,500 / 1,360	200 / 5,080	5,100 / 2,315
10730284-026	10730284-026	1,500 / 1,360	200 / 5,080	5,100 / 2,315
10730284-007	10730284-007	1,500 / 1,360	220 / 5,588	6,200 / 2,812
10730284-027	10730284-027	1,500 / 1,360	220 / 5,588	6,200 / 2,812
10730284-008	10730284-008	1,500 / 1,360	240 / 6,096	7,275 / 3,300
10730284-028	10730284-028	1,500 / 1,360	240 / 6,096	7,275 / 3,300
10730284-009	10730284-009	1,500 / 1,360	264 / 6,706	7,592 / 3,444
10730284-029	10730284-029	1,500 / 1,360	264 / 6,706	7,592 / 3,444
Part number	Oracle number	Load rating per set [sTon/Tonne]	Link Length [inches/mm]	Appr. weight per Set [lbs/kg]
10730284-010	10730284-010	1,500 / 1,360	350 / 8,890	10,610 / 4,812
10738399-350	10738399-350	1,500 / 1,360	350 / 8,890	10,610 / 4,812
10730284-010	10730284-010	1,500 / 1,360	360 / 9,144	10,740 / 4,872
10730284-030	10730284-030	1,500 / 1,360	360 / 9,144	10,740 / 4,872
10730284-011	10730284-011	1,500 / 1,360	480 / 12,192	14,450 / 6,554
10730284-031	10730284-031	1,500 / 1,360	480 / 12,192	14,450 / 6,554
10730284-012	10730284-012	1,500 / 1,360	600 / 15,240	18,190 / 8,250
10730284-032	10730284-032	1,500 / 1,360	600 / 15,240	18,190 / 8,250

Elevator link compatibility



WARNING: Never use links which have a capacity too low for carrying the load intended (dynamic + static), even if the links may fit on the elevator.

Elevator links	Top Drive Solid Body Elevator Rating				
	250T	400T	500T	650T	750T
250 sTon pn 16363Y*	yes	no	no	no	no
350 sTon pn 26940Y*	yes	yes	yes	yes	yes
500 sTon pn 25469Y*	no	yes	yes	yes	yes
750 sTon pn 16143Y*	no	no	no	yes	yes
1000 sTon pn 70101	no	no	no	no	no
1250 sTon pn M14000320Y*	no	no	no	no	no
1500 sTon pn 1073*	no	no	no	no	no

Elevator links	Elevator Y series						
	YC	MYC	HYC	YT	HYT	LYT*	MYT
250 sTon pn 16363Y*	yes	yes	yes	yes	yes	no	yes
350 sTon pn 26940Y*	yes	yes	yes	yes	yes	no	yes
500 sTon pn 25469Y*	no	no	yes	no	yes	no	no
750 sTon pn 16143Y*	no	no	no	no	no	no	no
1000 sTon pn 70101Y*	no	no	no	no	no	no	no
1250 sTon pn M14000320Y*	no	no	no	no	no	no	no
1500 sTon pn 1073*	no	no	no	no	no	no	no

Elevator links	Elevator T(M)A series			
	TA 1.050 - 2.7/8	TMA 2.3/8 - 5	TA 4.3/4 - 8.5/8 up to 100 sTon	TA 4.3/4 - 11.1/4 150 sTon only
250 sTon pn 16363Y*	no	yes	yes	yes
350 sTon pn 26940Y*	no	yes	yes	yes
500 sTon pn 25469Y*	no	no	no	yes
750 sTon pn 16143Y*	no	no	no	no
1000 sTon pn 70101Y*	no	no	no	no
1250 sTon pn M14000320Y*	no	no	no	no
1500 sTon pn 1073*	no	no	no	no

Elevator links	Elevator G series							
	MG	RGG	MGG	GG	HGG	RGA	GA	GGA
250 sTon pn 16363Y*	yes	yes	yes	yes	no	yes	yes	yes
350 sTon pn 26940Y*	yes	yes	yes	yes	yes	yes	yes	yes
500 sTon pn 25469Y*	no	no	yes	yes	yes	no	yes	yes
750 sTon pn 16143Y*	no	no	no	no	yes	no	no	no
1000 sTon pn 70101Y*	no	no	no	no	no	no	no	no
1250 sTon pn M14000320Y*	no	no	no	no	no	no	no	no
1500 sTon pn 1073*	no	no	no	no	no	no	no	no

* see part numbers

Elevator links	Elevator X series						
	SLX 1.66- 5.1/2	SLX 5.1/2- 24.1/2	SSD 1.66- 7.5/8	SSD 8.5/8-10.3/4 + 11.3/4-14	SX except 350 sTon	SX 350 sTon	SLX SD
250 sTon pn 16363Y*	yes	yes	yes	yes	no	yes	yes
350 sTon pn 26940Y*	yes	yes	yes	yes	yes	yes	yes
500 sTon pn 25469Y*	no	yes	no	yes	yes	yes	yes
750 sTon pn 16143Y*	no	no	no	no	no	no	no
1000 sTon pn 70101Y*	no	no	no	no	no	no	no
1250 sTon pn M14000320Y*	no	no	no	no	no	no	no
1500 sTon pn 1073*	no	no	no	no	no	no	no

Elevator links	Elevator X series **	
	SMX 150 sTon	SMX 250 + 350 sTon
250 sTon pn 16363Y*	yes	yes
350 sTon pn 26940Y*	yes	yes
500 sTon pn 25469Y*	no	yes** (rotation limited)
750 sTon pn 16143Y*	no	no
1000 sTon pn 70101Y*	no	no
1250 sTon pn M14000320Y*	no	no
1500 sTon pn 1073*	no	no

* see part numbers

** 250 and 350 sTon SMX elevators in combination with 500 sTon links gives reduced rotation possibility. Be advised to use 350 sTon links.

Elevator links	Casing Elevators / Spiders Varco Type					Casing Elevators / Spiders BJ Type	
	14" 500 sTon	14" 750 sTon	24" 500 sTon	24" 750 sTon	24" 1000 sTon	250 sTon	350 sTon
250 sTon pn 16363Y*	no	no	no	no	no	yes	no
350 sTon pn 26940Y*	no	no	no	no	no	yes	yes
500 sTon pn 25469Y*	yes	no	yes	no	no	yes	yes
750 sTon pn 16143Y*	no	yes	no	yes	no	no	no
1000 sTon pn 70101Y*	no	no	no	no	yes	no	no
1250 sTon pn M14000320Y*	no	no	no	no	yes	no	no
1500 sTon pn 1073*	no	no	no	no	yes	no	no

Elevator links	Riser handling solid body elevator rating					
	250 T	400 T	500 T	650T	750 T	1000T
250 sTon pn 16363Y*	yes	no	no	no	no	no
350 sTon pn 26940Y*	yes	yes	yes	yes	yes	no
500 sTon pn 25469Y*	no	yes	yes	yes	yes	no
750 sTon pn 16143Y*	no	no	no	yes	yes	yes
1000 sTon pn 70101Y*	no	no	no	no	yes	yes
1250 sTon pn M14000320Y*	no	no	no	no	yes	yes
1500 sTon pn 1073*	no	no	no	no	yes	yes

* see part numbers

Elevator links	BX3	BX4-35	BX4-50
	350 sTon	350 sTon	500 sTon
250 sTon pn 16363Y*	no	yes	no
350 sTon pn 26940Y*	yes	yes	yes
500 sTon pn 25469Y*	yes	yes	yes
750 sTon pn 16143Y*	no	no	yes
1000 sTon pn 70101Y*	no	no	no
1250 sTon pn M14000320Y*	no	no	no
1500 sTon pn 1073*	no	no	no

Elevator links	BX4-75	BX5	BX7	BX9	BXS, Slip type
	750 sTon	1,000 sTon	1,250 sTon	1,500 sTon	350 sTon
250 sTon pn 16363Y*	no	no	no	no	yes
350 sTon pn 26940Y*	no	no	no	no	yes
500 sTon pn 25469Y*	yes	no	no	no	yes
750 sTon pn 16143Y*	yes	yes	no	no	no
1000 sTon pn 70101Y*	no	yes	yes	no	no
1250 sTon pn M14000320Y*	no	yes	yes	no	no
1500 sTon pn 1073*	no	no	no	yes	no

* see part numbers

NOTES:

1. Compatibility is based on API 8C radii unless specific link part No's are listed.
2. If a link part No. is not listed, suitable fit with the SBE is to be confirmed
3. In some cases special links are required for use on Top Drive SBE's to permit proper operation of link tilt.
4. In general, an elevator will fit one size larger and one size smaller noted link. However, fit should always be confirmed when combining sizes of links and elevators.

Installation

 **WARNING:** No elevator, link or rig is the same and any installation procedure shall be assessed prior to execution.

 **WARNING:** Use suitable lifting equipment when handling elevators.

Installation of the links to the Top Drive

Procedure

- ❑ Lower the Hook or Top Drive as far as possible towards the drill floor.
- ❑ Ensure the links are lying in the vicinity of well center.
- ❑ Open the link blocks of the Hook or Top Drive by removal of the upper link block bolts.
- ❑ Use a tugger to lift the link eyes over the link ears of the hook or Top Drive.
- ❑ Close the link blocks .
- ❑ Install the securing parts as per assembly drawing.
- ❑ Lift the Top Drive or Hook till the links are in vertical position.

Installation of the links to an elevator

Procedure

- ❑ Lift the elevator to the drill floor by using a two-legged sling or chain around the link ears.
- ❑ Before lifting, close the link blocks and install the securing parts as per assembly drawing.
- ❑ Place the elevator on the drill floor as close as possible to well center.
- ❑ Open the upper link blocks by removing the upper link block bolt assembly.
- ❑ Lower the links as far as possible towards the drill floor.
- ❑ Push the links to a position the lower link ears can be pushed over the elevator link ears.
- ❑ Close the link blocks.
- ❑ Install the securing parts as per assembly drawing.
- ❑ Now, the elevator can be hoisted.

Link handle kit

The Link handle kit can be used in combination with any Manual Operated Elevator. It is developed for easier handling of links and functions as a safe gripping point when closing and opening elevators. It is suitable for 250 (2.1/4") and 350 (2.3/4") sTon links.

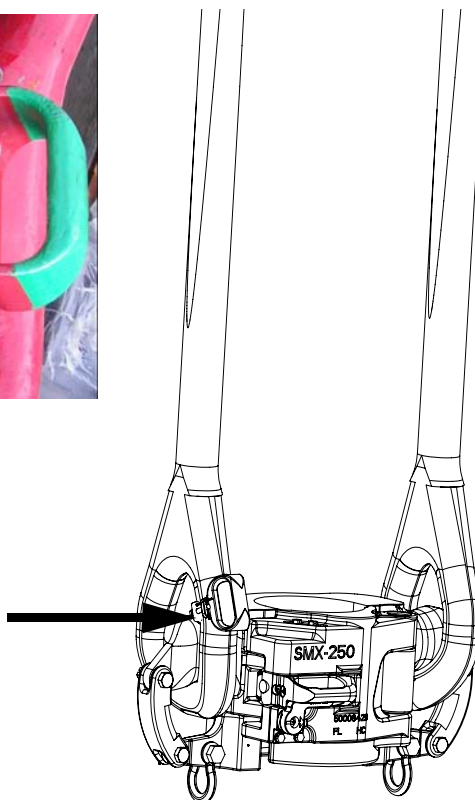
Legacy number 50006435 / Part number 10143656-001

Fitting

1. Install a link handle (recommended) on the upper portion of the lower eye to provide for a safe gripping area.
2. Ensure no interference occurs between handle and elevator when rotating the elevator.



Link handle mounted at upper portion of link eye preventing interference



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Inspection & wear data

Safety



WARNING: NOV does not allow welding of links and bails. Links and bails cannot be repaired or reconditioned by welding.



NOTE: When a link set is de-rated, the rating of the set is based on the weakest link.

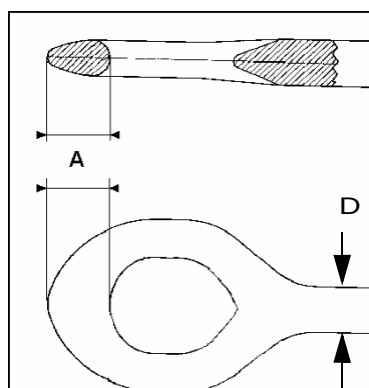
Wear chart shaft (shank)

Wear/damage may result in a reduced section of the material, hence this will lead to a derating of the link according to below table.

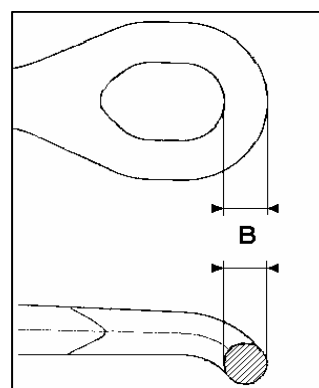
250 sTon		350 sTon		500 sTon		750 sTon		1,000 sTon		1,250 sTon*		1,500 sTon*	
D [inches]	Rating sTon	D [inches]	Rating sTon	D [inches]	Rating sTon	D [inches]	Rating sTon	D [inches]	Rating sTon	D [inches]	Rating sTon	D [inches]	Rating sTon
2.75"	250	3.25"	350	3.688"	500	4.55"	750	5.25"	1,000	5.25"	1,250	5.50"	1,500
2.688"	215	3.188"	325	3.625"	480	4.438"	725	5.125"	962	5.125"	1,202	5.375"	1,452
2.625"	200	3.125"	312	3.5"	450	4.375"	700	5"	915	5"	1,143	5.250"	1,393
2.5"	185	3"	288	3.375"	415	4.25"	662	4.875"	870	4.875"	1,087	5.125"	1,337

* higher grade material used

Wear chart forged links



Upper eye



Lower eye

Fig. 3



NOTE: In general, an allowable twist between the upper and lower eye is 2 degrees

Link	Upper Eye (A) (greater or equal to)	Lower Eye (B) (greater or equal to)	Rating (sTon)
150 sTon	3.38"	1.625"	150
	3.25"	1.50"	125
	3.13"	1.44"	112.5
	Height less than 3.13"	Height less than 1.44"	Scrap
250 sTon	4.75"	2.06"	250
	4.63"	1.88"	200
	4.5"	1.75"	180
	Height less than 4.5"	Height less than 1.75"	Scrap
350 sTon	4.75"	2.56"	350
	4.63"	2.38"	290
	4.5"	2.25"	260
	Height less than 4.50"	Height less than 2.25"	Scrap
500 sTon	5.625"	3.25"	500
	5.25"	3"	440
	5."	2.75"	375
	Height less than 5"	Height less than 2.75"	Scrap
750 sTon	7"	7"	750
	6.75"	6.75"	700
	6.5"	6.5"	600
	Height less than 6.5"	Height less than 6.5"	Scrap
1,000 sTon	7.875"	7.875"	1,000
	7.5"	7.5"	900
	7.125"	7.125"	800
	Height less than 7.125"	Height less than 7.125"	Scrap
1,250 sTon*	7.875"	7.875"	1,250
	7.5"	7.5"	1,125
	7.125"	7.125"	1,000
	Height less than 7.125"	Height less than 7.125"	Scrap
1,500 sTon*	7.875"	7.875"	1,500
	7.5"	7.5"	1,125
	7.125"	7.125"	1,000
	Height less than 7.125"	Height less than 7.125"	Scrap

*Higher grade material used

Wear data Perfection links.

Standard diameter of a Perfection link is 2.00".

Minimum allowable diameter is 1.75"

Magnetic Particle Inspection

The NOV critical area drawings will indicate which areas are considered as to be critical or non-critical. **In general; for load bearing components, in case no critical area drawing exists, the complete component is considered critical.**

Carry out MPI according to ASTM E709 or ASME BPVC sub section A, article 7 and subsection B, article 25; determine the type of defects and the degree by comparing defects to ASTM E125 reference photographs to the acceptance criteria.

Only cracks may develop and as such need to be reviewed. All other indication types have been addressed by the manufacturer during production. As such, the link has left the factory with indication (if at all) which were deemed acceptable. All cracks which have developed in service are relevant and need to be examined.

NOV links should be MPI examined according to the inspection procedures. The areas subject to inspection shall be inspected according to the procedures developed by the user or, alternatively, as per API RP 8B.

Evaluations of indications

Relevant indications: Only those indications with major dimensions greater than 1/16" (2 mm) and associated with a surface rupture shall be considered relevant. Relevant indications are indications that results from discontinuities within the test part.



NOTE: If any relevant indications are found, contact NOV to determine the next course of action. Preferably an inspection report (with photograph or sketch) detailing the serial number of the equipment and the type, length and location of the indication should be presented. NOV will be able to advise the proper and most efficient repair.

Qualifications and certification

All personnel performing and interpreting MPI shall be qualified in accordance with the guidelines of ASNT SNT-TC-1A (latest edition) or an equivalent standard and shall be trained in the use of the reference photographs and the interpretation of the MPI with regard to the acceptance criteria and ASTM E125 reference photographs.

Criteria for API 8A & 8C equipment

The following acceptance criteria shall apply for surface NDE of wrought materials:

- ❑ no relevant indications with a major dimension equal to or greater than 5 mm (3/16")
- ❑ no more than ten relevant indications in any continuous 40 cm² (6 in²) area
- ❑ no more than three relevant indications in a line separated by less than 2 mm (1/16") edge-to-edge
- ❑ no relevant indications in pressure-sealing areas, in the root area of rotary threads or in the stress-relief features of threaded joints

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