



Bulletin MSG11-5715-728/UK

Brief Operation Manual

Series

D1FV*EE (Design series 13)

D1FB*EE (Design series 18)

D*1FB*EE (Design series 13)



II 2 G c T4 Gb

$-20\text{ }^{\circ}\text{C} \leq T_a \leq +40\text{ }^{\circ}\text{C}$

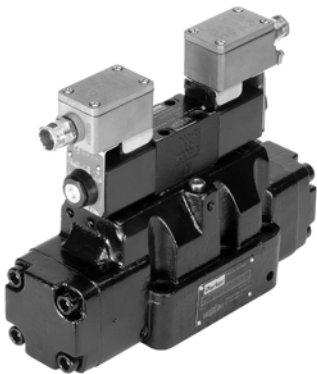
D*1FB*EEXG371

$-20\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$

Proportional Pressure Reducing Valve / Proportional DC Valve



ATEX



Parker Hannifin

Manufacturing Germany GmbH & Co. KG

Industrial Systems Division Europe

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Tel.: (+49) 181 99 44 43 0

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**WARNING – USER RESPONSIBILITY**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Please notice:

Prior to commissioning, this brief operation manual must be read and understood. The safety instructions must be strictly observed. Parker disclaims any liability for damage resulting from non-compliance with the safety instructions listed here.

The detailed and current operation manuals for the individual valve series can be found on the Parker homepage at www.parker.com/isde in the “Support” area. Or download the current manuals by scanning the following QR codes:

D1FV*EE



D1FB*EE



D*1FB*EE



The ProPxD parameterizing software can be downloaded free of charge at www.parker.com/isde in the “Support” area or directly at www.parker.com/propxd.

EC declarations of conformity

EG-Konformitätserklärung / EC-Declaration of Conformity
2014/34/EU (ATEX)



Parker Hannifin Manufacturing Germany GmbH & Co. KG
Hydraulic Controls Division Europe
Gutenbergstrasse 38
41564 Kaarst, Germany

Parker Hannifin erklärt, dass die nachstehenden Produkte auf Seite 2 explosionsgeschützt ausgeführte Geräte im Sinne des Artikels 1 (3) der Richtlinie 2014/34/EU sind und die grundlegenden Sicherheits- und Gesundheitsanforderungen gemäß Anhang II dieser Richtlinie erfüllen.

Parker Hannifin declares, that series on page 2 are explosion-proofed components according to article 1 (3) of directive 2014/34/EU and they fulfill the basic health and safety requirements specified in Annex II of this directive.

Folgende harmonisierte Normen wurden angewandt – weitere Hinweise zur Konformitätsaussage enthält die technische Dokumentation:

Below harmonised standards used – the technical documentation covers additional information regarding declaration of conformity:

- | | |
|-------------------------|---|
| EN 1127-1:2011 | Explosionsfähige Atmosphären – Explosionsschutz
Teil 1: Grundlagen und Methodik
Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology |
| EN ISO 4413:2010 | Fluidtechnik – Allgemeine Regeln und sicherheitstechnische Anforderungen an Hydraulikanlagen und deren Bauteile
Hydraulic fluid power - General rules and safety requirements for systems and their components |
| EN 13463-1:2009 | Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen
Teil 1: Grundlagen und Anforderungen
Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements |
| EN 13463-5:2011 | Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen
Teil 5: Schutz durch konstruktive Sicherheit "c"
Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety "c" |

Die Geräte erfüllen die Anforderungen entsprechend der Kategorie / Angaben zur Kennzeichnung (Typenschild):
The components fulfill the requirements of category / Identification marking (on nameplate):



Der korrekte Gebrauch der Geräte bei Installation und Betrieb wird vorausgesetzt. Details zum korrekten Gebrauch (einschließlich Explosionsschutz) sind in der Betriebsanleitung hinterlegt.
It is mandatory, that the installation and the operation of the components are according to their designated usage. Information to the designated use are given in installation manual and product documentation.

Die beschriebenen Produkte sind in Übereinstimmung mit den einschlägigen EU-Harmonisierungsvorschriften: Richtlinie 94/9/EG (bis 19. April 2016) und Richtlinie 2014/34/EU (ab 20. April 2016).
The products of the declaration described are in conformity with the relevant Union harmonisation legislation: Directive 94/9/EC (until 19 April 2016) and Directive 2014/34/EU (from 20 April 2016).

Ort, Datum / Place, date:

Kaarst, 20.04.2016

Unterschrift / Signature:

Angaben zum Unterzeichner / Name and position:


Hansgeorg Kolvenbach / General Manager

2014-34-eu_Prop-G-40_20-04-16_Fu

EG-Konformitätserklärung / EC-Declaration of Conformity
2014/34/EU (ATEX)

Nachstehend alle Produkte, die den Anforderungen der Richtlinie entsprechen:
Products that correspond fulfill to the requirements of directive:

1. **Vorgesteuerte Proportional-Wegeventile / pilot operated proportional DC valves**
D31FB*EE
D41FB*EE
D91FB*EE
D111FB*EE
2. **Direktgesteuerte Proportional-Wegeventile / direct operated proportional DC valves**
D1FB*0EE
D1FB*3EE
3. **Proportional Druckreduzierventile / proportional pressure reducing valves**
D1FV*EE

2014-34-eu_Prop-G-40_20-04-16_Fu

EG-Konformitätserklärung / EC-Declaration of Conformity
2014/34/EU (ATEX)



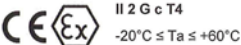
Parker Hannifin Manufacturing Germany GmbH & Co. KG
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41564 Kaarst, Germany

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Teil 5: Schutz durch konstruktive Sicherheit "c"
Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety "c"

Die Geräte erfüllen die Anforderungen entsprechend der Kategorie / Angaben zur Kennzeichnung (Typenschild):
The components fulfill the requirements of category / Identification marking (on nameplate):



Der korrekte Gebrauch der Geräte bei Installation und Betrieb wird vorausgesetzt. Details zum korrekten Gebrauch (einschließlich Explosionsschutz) sind in der Betriebsanleitung hinterlegt.
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Ort, Datum / Place, date:

Kaarst, 20.04.2016

Unterschrift / Signature:
Angaben zum Unterzeichner / Name and position:

Hansgeorg Kolvenbach / General Manager

2014-34-eu_Wege-G-60_20-04-16_Fu

EG-Konformitätserklärung / EC-Declaration of Conformity 2014/34/EU (ATEX)

Nachstehend alle Produkte, die den Anforderungen der Richtlinie entsprechen:
Products that correspond fulfill to the requirements of directive:

1. **Vorgesteuerte Proportional-Wegeventile / pilot operated proportional DC valves**
 - D31FB*EE-XG371
 - D41FB*EE-XG371
 - D91FB*EE-XG371
 - D111FB*EE-XG371
2. **Direktgesteuerte Proportional-Wegeventile / direct operated proportional DC valves**
 - D1FB*0EE-XG371
 - D1FB*3EE-XG371
3. **Vorgesteuerte Wegeventile / pilot operated DC valves**
 - D31DW*EE
 - D31NW*EE
 - D41VW*EE
 - D81/91VW*EE
 - D111VW*EE
4. **Direktgesteuerte Wegeventile / direct operated DC valves**
 - D1VW*EE
5. **Proportional Druckreduzierventile / proportional pressure reducing valves**
 - D1FV*EE-XG371

2014-34-eu_Wege-G-60_20-04-16_Fu

Attention: safety instruction, please note and implement!

A1. Delivery - Please check the delivery immediately after receiving the product if the content is matching with the specified scope of supply and for apparent damages due to shipping.

A2. Information obligation - Information regarding safety and health in product documentations must be read and understood before the customer-specific application (e.g. commissioning and maintenance) and before general use (e.g. storage, transport).

A3. Intended use - If our product is not used for the intended purpose, or structurally modified, improperly used, or there is a failure caused by external impact or force majeure, danger may occur which were not considered by the manufacturer. Damages resulting from this are not the responsibility of Parker.

A4. Marking, name plates - Instructions applied on the electronics, i.e. wiring diagrams and name plates, must be observed and maintained legibly.

A5. Work at the electronics and hydraulics - Installation and commissioning of the electronics may only be allowed by qualified personnel.

All prescribed requirements for the protection of users must be implemented and complied with before commissioning/installation/dismantling of the hydraulic components. It should be noted that national schemes for safety must be observed.

Product specific (P)

P1. Electronic control system - The valve must be operated by a suitable electronic control system. Connecting to an unsuitable electronic control system may result in irreparable damage to the valve or the electronic control system.

P2. Temperature - During application, the product may heat up at the surface and exceed the burn threshold. Even short-term contacts may lead to burns. **Temperatures of more than 80 °C may cause malfunctions of the onboard electronics.**

ATEX specific (E)

E1. ATEX specific annexes (chapters) must be observed.

E2. Work on the valve - Throughout any installation, commissioning, maintenance and repair work, it is the responsibility of the operator to ensure that there is no risk of explosion.

Before starting such work, the operator has to ensure that tools and equipment are only used if they do not damage the valve and they do not leave behind residues that are inflammable.

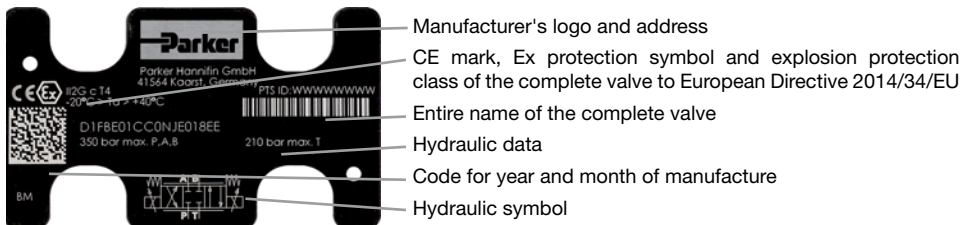
In addition, clean the valve before starting such work, in particular removing dust, liquids and other deposits. Cleaning should be done using a lint-free cloth. Tools may not be used if they might cause a static charge on use.

E3. Pressure fluids - The pressure fluid must have an ignition temperature of at least 50 K above the maximum surface temperature of the valve (see EN 13463-5 and IEC 60079-4).

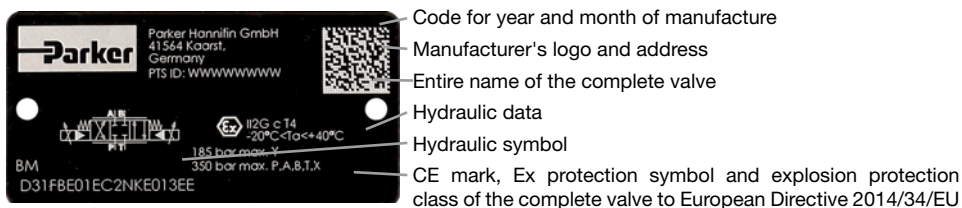
Brief Operation Manual

Name plate

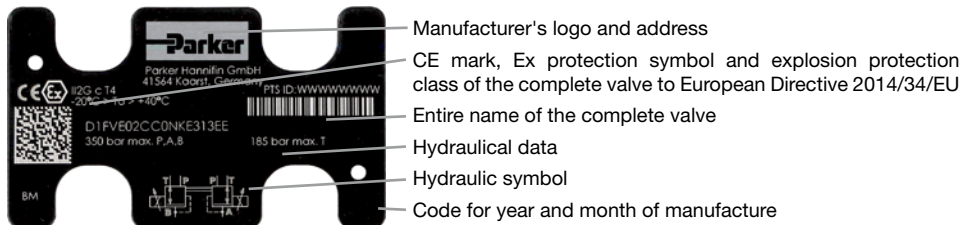
D1FB*EE



D*1FB*EE



D1FV*EE



Proportional Pressure Reducing Valve / Proportional DC Valve

Brief Operation Manual

Technical data

General						
Design	D1FV, direct operated proportional pressure reducing valve D1FB, direct operated proportional DC valve D*1FB, pilot operated proportional DC valve					
Actuation	Proportional solenoid					
Size	D1FV; D1FB		D*1FB			
	NG06 CETOP 03	NG10 CETOP 05	NG16 CETOP 07	NG25 CETOP 08	NG32 CETOP 10	
Mounting interface	DIN 24340 / ISO 4401 / CETOP RP121 / NFPA					
Mounting position	unrestricted					
Ambient temperature	-20...+40; XG371: -20...+60					
MTTF _D value	[Jahre]	150	75			
Weight	[kg]	3.5 (2 solenoids), 2.5 (1 solenoid)	9.4	12.8	20.3	69.3
Hydraulic						
Max. operating pressure	[bar]	Ports P, A, B 350; port T 185 (D1FV), 210 (D1FB)	Pilot drain internal: P, A, B, X 350; T, Y 185 Pilot drain external: P, A, B, T, X 350; Y 185			
Fluid	Hydraulic oil as per DIN 51524...535, other on request					
Fluid temperature	[°C]	-20...+40; XG371: -20...+60				
Viscosity	permitted	20...400				
	recommended	30...80				
Filtration	ISO 4406; 18/16/13					
Max. flow	[l/min]	D1FV: 10				
Min. primary pressure	[bar]	D1FV: 30				
Nominal flow at Δp=5 bar per control edge *	[l/min]	D1FB*0: 6/12/20; D1FB*3: 10/20/30	75/90/120	130/200	250/400	1000
Leakage at 100 bar	[ml/min]	D1FB*0: <50; D1FB*3: <60	100	200	600	1000
Overlap	[%]	D1FB: 25, electrically normalized at 10 (see data sheet)				
Pilot supply pressure	[bar]	-	min. 30 (+ T/Y pressure), max. 350 optimal dynamics at 50			
Pilot flow at 100bar	[l/min]	-	<0,5	<1,2	<1,2	<1,2
Pilot flow, step response	[l/min]	-	2,0	1,9	4,5	18
Static / Dynamic						
Step response at 100% step	[ms]	30	50	75	100	180
Hysteresis	[%]	D1FV, D1FB*0: <4; D1FB*3: <6	<5			
Temperature drift solenoid current	[%/°K]	<0,02				

Electrical characteristics						
Duty ratio	[%]	100				
Protection class	CE (Ex) II 2 G, Ex e mb IIC T4 Gb, IP66 (plugged and mounted correctly)					
Solenoid		K	J	J*XG371		
Supply voltage	[V]	12	24	24		
Current consumption	[A]	2,3	1,15	1,0		
Resistance	[Ohm]	3,0	12,0	12,0		
Solenoid connection	Box with M20x1.5 entry for cableglands. Solenoid identificationas per ISO 9461.					
Wiring min.	[mm ²]	3 x 1.5 recommended				
Wiring length max.	[m]	50 recommended				

With electrical connections the protective conductor (PE ⊥) must be connected according to the relevant regulations.

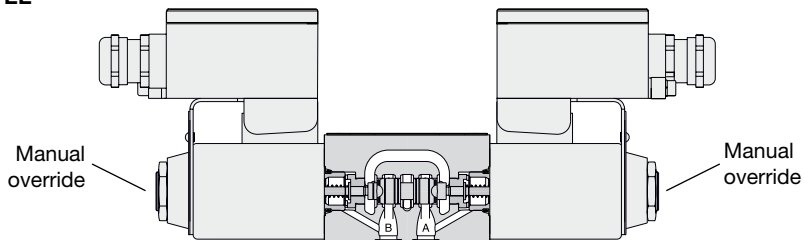
* Flow rate for different Δp per control edge:

$$Q_x = Q_{Nom.} \cdot \sqrt{\frac{\Delta p_x}{\Delta P_{Nom.}}}$$

Brief Operation Manual

Direct operated proportional pressure reducing valve

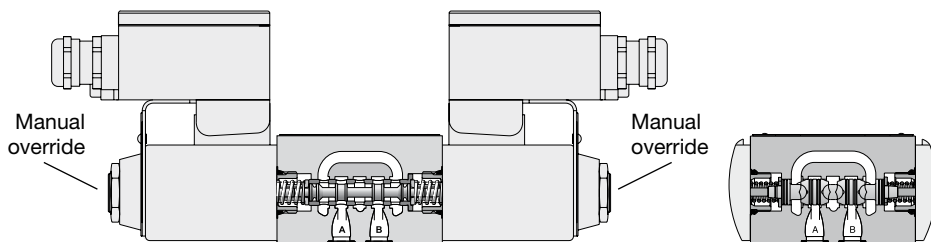
D1FV*EE



Direct operated proportional DC valve

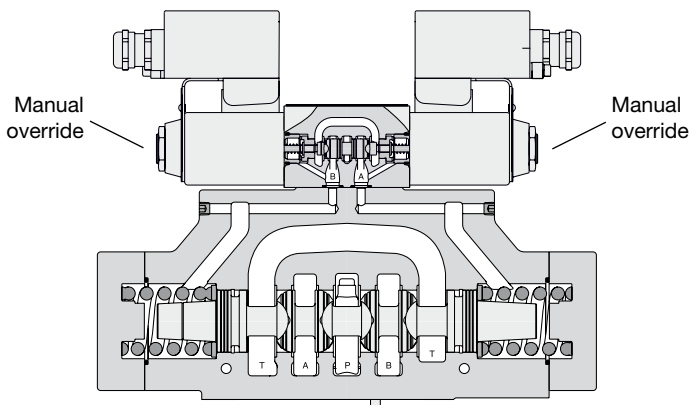
D1FB*3*EE, spool/body design

D1FB*0*EE, spool/sleeve design



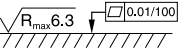


Pilot Operated Proportional DC Valve

D*1FB*EE

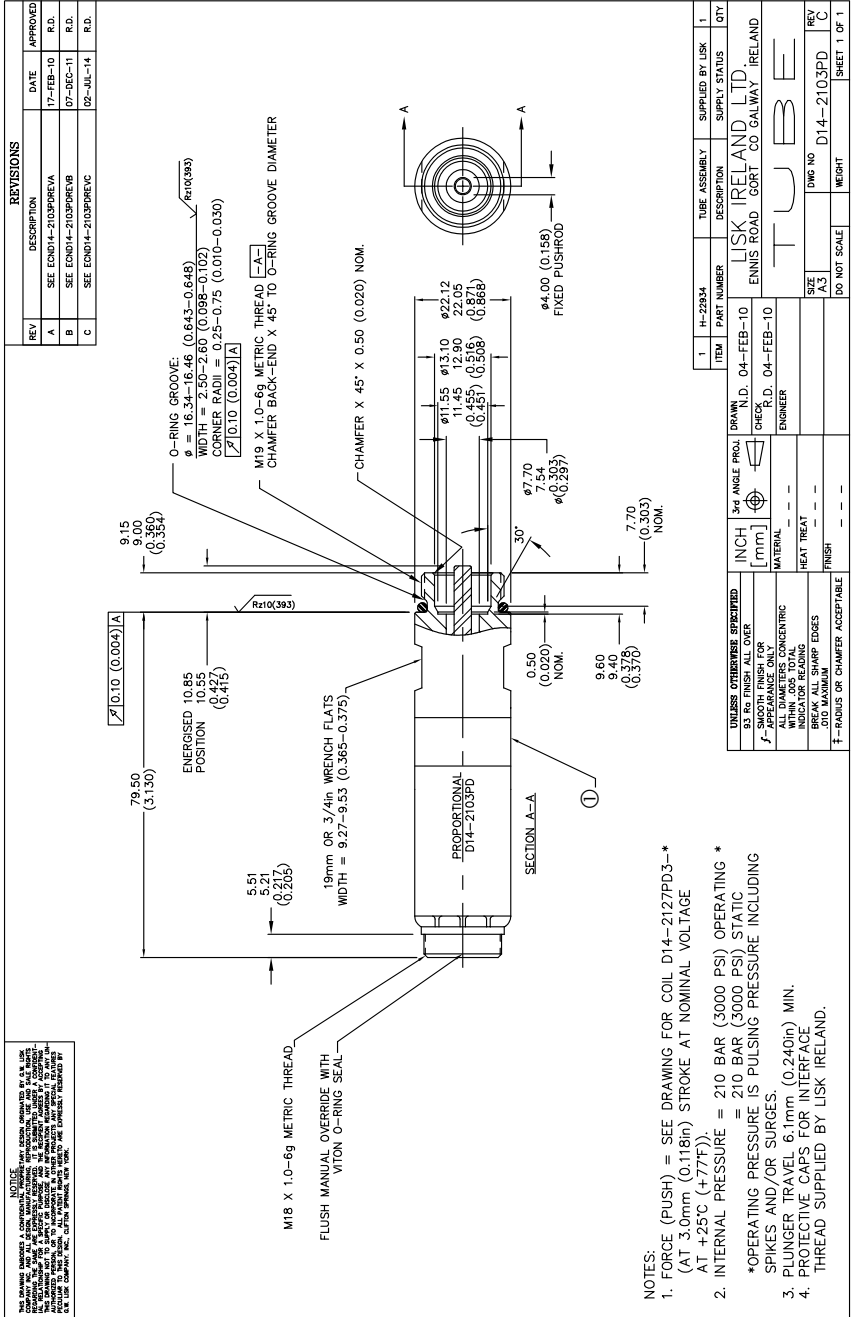


Electrical connection, see D14-2114PD-* in the annex.

	 ISO 4762-12.9		Surface finish
D1FB, D1FV	4x M5x30	7.6 Nm \pm 15 %	
D31FB	4x M6x40	13.2 Nm \pm 15 %	
D41FB	2x M6x55; 4x M10x60	13.2 Nm; 63 Nm \pm 15 %	
D91FB	6x M12x75	108 Nm \pm 15 %	
D111FB	6x M20x90	517 Nm \pm 15 %	

Standards, directives and provisions relating to the operation of systems in potentially explosive areas (extract)

1999/92/EC	Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres
2004/108/EC	Electromagnetic compatibility directive (EMC)
EN ISO 12100:2010	Safety of machinery – General principles for design risk assessment and risk reduction
EN 15198:2007	Methodology for risk assessment of non-electrical equipment and components for intended use in potentially explosive atmospheres
EN 60079-0:2009	Explosive atmospheres – Part 0: Equipment – General requirements
EN 60079-7:2007	Explosive atmospheres – Part 7: Equipment protection by increased safety “e”
EN 60079-14:2009	Explosive atmospheres – Part 14: Electrical installations design, selection and erection (IEC 60079-14:2013)
EN 60079-17:2014	Explosive atmospheres – Part 17: Electrical installations inspection and maintenance (IEC 60079-17:2013)
EN 60529:2014	Degrees of protection provided by enclosures (IP code) (IEC 60529:1989 + A1:1999 + A2:2013)
BetrSichV	Ordinance on industrial safety and health
TRBS 2153:2009	Technical rules for operating safety Avoiding ignition hazards as a result of electrostatic charges



Type-examination certificate – Solenoid

Certificate Number
Baseefa02ATEX0199X



Issued 6 February 2003
Page 1 of 3

1 EC - TYPE EXAMINATION CERTIFICATE

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 EC – Type Examination Certificate Baseefa02ATEX0199X
Number :

4 Equipment or protective system: The Type D/K XX-XD-XD Solenoids

5 Manufacturer : G.W. Lisk Company Incorporated

6 Address : 2 South Street, Clifton Springs, New York, 14432, USA

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd. Notified body number 1180 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. 02(C)0465

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 (1997) + Amendments 1 & 2; EN 50019 (2000); EN 50028 (1987)

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

Ⓢ II 2G EEx me II T(See Schedule) $-54^{\circ}\text{C} \leq T_{\text{amb}} \leq +40^{\circ}\text{C}$ or $-54^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa (2001) Ltd. Customer Reference No. 0435

Project File No.02/0465

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR

DIRECTOR

On behalf of
Baseefa (2001) Ltd.

Baseefa (2001) Ltd.

Health and Safety Laboratory Site, Harpur Hill,
Buxton, Derbyshire SK17 9JN

Telephone +44 (0) 1298 28255 Fax +44 (0) 1298 28216
e-mail info@baseefa2001.biz web site www.baseefa2001.biz

Registered in England No. 4305578 at 13 Dovedale Crescent, Buxton,
Derbyshire, SK17 9BJ

Certificate Number
Baseefa02ATEX0199X



Issued 6 February 2003
Page 2 of 3

Schedule

15 Description of Equipment or Protective System

The Type D/K XX-XD-XD Solenoids comprise an encapsulated coil solenoid fitted with an increased safety terminal enclosure. Additionally the Type K solenoids are fitted with a bridge rectifier and a shunt varistor. The coil and components are encapsulated in a glass fibre filled polyester resin.

The solenoid is fitted to a core tube, which contains the solenoid armature. The core tube is provided with a mounting thread to customer specification. The solenoid is retained on the core tube by a spacer and nut.

Internal and external earth facilities are provided.

An M20 cable entry is provided for connection of the users cabling.

The solenoid is designed and rated for mounting on a specified valve body (see sheet 8 of drawing number H17423).

The Type designation represents the following information,

- i) The first character is either D for d.c. input or K for a.c. input.
- ii) The first two digits (10, 12, 13, 14, 15, 16, 17, 18 or 19) identify the diameter of the core tube in 1/16 inches.
- iii) The subsequent 1, 2, 3, or 4 digits identify information specific to the customer. Associated with these digits is the character D which indicates that the coil is an explosion protection design (EEx me).
- iv) The final group of 3 numbers signify the voltage and wattage ratings.

Both d.c. and a.c. versions are fitted with a thermal fuse rated with an operating temperature according to the applicable temperature classification as follows;

- For T6 versions a 75°C rated thermal fuse is fitted.
- For T5 versions a 90°C rated thermal fuse is fitted.
- For T4 versions a 125°C rated thermal fuse is fitted.

The solenoid coil may be wound for use with supplies of up to 250V d.c. (Type D) or 250V a.c. 50Hz or 60Hz (Type K). The maximum stabilized power dissipation for a given maximum ambient temperature and temperature classification for the solenoid mounted on a specified valve body are given in the table below.

MAXIMUM PERMITTED STABILIZED POWER (Watts)

Solenoid Type	Ambient Temperature (°C)	Power (Watts)		
		T6	T5	T4
D10, K10	40	12	18	30
	60	6	11	25
D12, K12, D13, K13, D14, K14, D15, K15	40	13	22	36
	60	4	11	30
D14, K14, D15, K15	40	16	23	39
	60	7	13	30
D16, K16, D17, K17, D18, K18, D19, K19	40	25	37	50
	60	10	22	42

Certificate Number
Baseefa02ATEX0199X



Issued 6 February 2003
Page 3 of 3

16 Report No. 02(C)0465

17 **Special Conditions for Safe Use**

1. The solenoid must only be mounted on a valve body which has a heat dissipation equal to or greater than the valve body shown on sheet 8 of drawing number H17423. The solenoid valve must be complete before the coil is energised.
2. The solenoid and the valve body on which it is mounted must not be thermally lagged.
3. The fluid flowing through the valve must not exceed the specified ambient temperature of 40°C or 60°C.
4. The solenoid shall be protected by fuses rated for a prospective short circuit current of at least 4000A.

18 **Essential Health and Safety Requirements**

None additional to those covered by the standards listed at item 9

19 **Drawings and Documents**

<u>Number</u>	<u>Issue</u>	<u>Date</u>	<u>Description</u>
H17423 sheet 1	A	05 Jun 01	General Arrangement
H17423 sheet 2	A	05 Jun 01	Dimensional Details
H17423 sheet 3	A	05 Jun 01	Terminal Box
H17423 sheet 4	A	05 Jun 01	Circuit Details
H17423 sheet 5	A	05 Jun 01	Coil Details
H17423 sheet 6	A	05 Jun 01	Certification Label
H17423 sheet 7	A	05 Jun 01	Voltage & Power Ratings
H17423 sheet 8	A	05 Jun 01	Heat Sink (Valve Body) Details
H17423 sheet 9	A	05 Jun 01	Encapsulant Details

Certificate Number
Baseefa02ATEX0199X/1



Issued 8th April 2009
Page 1 of 2

1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: Baseefa02ATEX0199X/1

4 Equipment or Protective System: The Type D/K XX-XD-XD Solenoids

5 Manufacturer: G.W. Lisk Company Incorporated

6 Address: 2 South Street, Clifton Springs, New York 14432, USA

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa02ATEX0199X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. 0435

Project File No. 09/0188

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Certificate Number
Baseefa02ATEX0199X/1



Issued 8th April 2009
Page 2 of 2

13 **Schedule**
14 **Certificate Number Baseefa02ATEX0199X/1**

15 **Description of the variation to the Equipment or Protective System**

Variation 1.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0: 2006, EN 60079-7: 2007 and EN 60079-18: 2004 in respect of the differences from EN 50014: 1997 + amd. 1 & 2, EN 50019: 2000 and EN 50028: 1987 and that none of these differences in the Standard affects this equipment.

Variation 1.2

To permit minor design and drawing changes.

16 **Report Number**

None

17 **Special Conditions for Safe Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
H17423	1	B	20 Feb 09	General arrangement
H17423	2	B	20 Feb 09	Dimensional detail
H17423	3	B	20 Feb 09	Terminal box
H17423	4	B	20 Feb 09	Circuit details
H17423	5	B	20 Feb 09	Coil details
H17423	6	B	20 Feb 09	Certification label
H17423	7	B	20 Feb 09	Voltage and power ratings
H17423	8	B	20 Feb 09	Heat sink (valve body) details
H17423	9	B	20 Feb 09	Encapsulant details

Certificate Number
Baseefa02ATEX0199X/2



Issued 26 October 2012
Page 1 of 3

1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0199X/2**

4 Equipment or Protective System: **The Type D/K XX-XD-XD Solenoids**

5 Manufacturer: **G.W. Lisk Company Incorporated**

6 Address: **2 South Street, Clifton Springs, New York 14432, USA**

7 This supplementary certificate extends EC - Type Examination Certificate No. **Baseefa02ATEX0199X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN60079-0: 2012 EN60079-7: 2007 EN60079-18: 2009

except in respect of those requirements listed at item 18 of the Schedule."

9 The marking of the equipment has changed from the original Certificate and shall include the following:

Ⓢ II 2 G Ex e mb T* Gb Ta -40°C to +C * See schedule**

This certificate shall be held with the original certificate and may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0435**

Project File No. **10/0568**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Baseefa
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e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

Certificate Number
Baseefa02ATEX0199X/2



Issued 26 October 2012
Page 2 of 3

13

Schedule

14

Certificate Number Baseefa02ATEX0199X/2

15 **Description of the variation to the Equipment or Protective System**

Variation 2.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0: 2012, and EN 60079-18: 2009.

Variation 2.2

To permit alternative ratings at 50°C ambient temperature. The maximum stabilised power for the temperature classification and ambient temperature range for each size of solenoid is indicated below.

Coil size	Ambient temperature (°C)	Maximum Stabilised Power (W)		
		T4	T5	T6
1	-40°C to +40°C	18	14	9
	-40°C to +60°C	14	8	3
2	-40°C to +40°C	21.5	15.4	10.8
	-40°C to +50°C	18.9	12.3	7.9
	-40°C to +60°C	16.4	9.3	5.1
3	-40°C to +40°C	22.2	16.4	11.4
	-40°C to +50°C	19.5	13.0	8.4
	-40°C to +60°C	16.8	9.9	5.5
4	-40°C to +40°C	34.1	21.3	15.1
	-40°C to +50°C	29.8	17.1	11.1
	-40°C to +60°C	25.6	13.1	7.3

The table above supersedes the previously permitted wattages.

Variation 2.3

Deletion of the use of a varistor.

Variation 2.4

The use of thermal fuses to be optional.

16 **Report Number**

Baseefa certification report 10(C)0568.

17 **Specific Conditions of Use**

The solenoids shall be protected by fuses rated for a prospective short circuit current of at least 1500A.

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Certificate Number
Baseefa02ATEX0199X/2



Issued 26 October 2012
Page 3 of 3

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
H17423	1	C	14 Sept 2012	General Assembly
H17423	2	C	14 Sept 2012	General Assembly and sizes
H17423	3	C	14 Sept 2012	Terminal Box Details
H17423	4	C	14 Sept 2012	Internal Components and Wiring Details
H17423	5	C	14 Sept 2012	Winding Details
H17423	6	C	14 Sept 2012	Marking Details
H17423	7	C	14 Sept 2012	Power Details
H17423	8	C	14 Sept 2012	Valve and Subplate details
H17423	9	C	14 Sept 2012	Compound Details

Certificate Number
Baseefa02ATEX0199X/3



Issued 16 May 2014
Page 1 of 2

1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

- 3 Supplementary EC - Type Examination Certificate Number: **Baseefa02ATEX0199X/3**
- 4 Equipment or Protective System: **Type D/KXX-XXXXD-XX Solenoids**
- 5 Manufacturer: **G.W. Lisk Company Incorporated**
- 6 Address: **2 South Street, Clifton Springs, New York 14432, USA**
- 7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa02ATEX0199X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0435**

Project File No. **13/0686**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and the Supplementary Terms and Conditions accessible at <http://www.baseefa.com/terms-and-conditions.asp>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Baseefa Limited

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Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

R S SINCLAIR
GENERAL MANAGER

On behalf of SGS Baseefa Limited

Certificate Number
Baseefa02ATEX0199X/3



Issued 16 May 2014
Page 2 of 2

13

Schedule

14

Certificate Number Baseefa02ATEX0199X/3

15 **Description of the variation to the Equipment or Protective System**

Variation 3.1

To permit the option of an alternative terminal enclosure with two cable entries.

Variation 3.2

To note minor modifications and rewording of the Specific Conditions of Use.

16 **Report Number**

GB/BAS/ExTR13.0206/00.

17 **Specific Conditions of Use**

- 1 The solenoid must only be used on valve sizes with heat dissipation specified by the manufacturer of the solenoid in the instructions. The solenoid must be completely assembled with the valve before the solenoid is energised.
- 2 The solenoid and the valve on which it is mounted must not be thermally lagged.
- 3 The fluid flowing through the valve must not exceed the specified ambient temperature.
- 4 The solenoid shall be protected by a fuse rated for a prospective short circuit current of at least 1500A.

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
H17423	1	D	23.Apr.14	General Assembly
H17423	2	D	23.Apr.14	General Assembly and Sizes
H17423	3	D	23.Apr.14	Terminal Box Details
H17423	4	D	23.Apr.14	Internal Components and Wiring Details
H17423	5	D	23.Apr.14	Winding Details
H17423	6	D	23.Apr.14	Marking Details
H17423	7	D	23.Apr.14	Power Details
H17423	8	D	23.Apr.14	Valve and Subplate Details
H17423	9	D	23.Apr.14	Compound Details
H17423	10	D	23.Apr.14	Alternative Terminal Enclosure



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BAS 13.0093X	Issue No: 0	<u>Certificate history:</u> Issue No. 0 (2014-05-16)
Status:	Current	Page 1 of 3	
Date of Issue:	2014-05-16		
Applicant:	G.W. Lisk Company Incorporated 2 South Street Clifton Springs New York 14432 United States of America		
Electrical Apparatus:	Type D/XXX-XXXX-XX solenoids		
<i>Optional accessory:</i>			
Type of Protection:	Increased safety and Encapsulation		
Marking:	Ex e mb IIC T* Gb Ta -40°C to + **°C		

*Approved for issue on behalf of the IECEx
Certification Body:*

R S Sinclair

Position:

General Manager

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom





IECEX Certificate of Conformity

Certificate No:	IECEX BAS 13.0093X	Issue No: 0
Date of Issue:	2014-05-16	Page 2 of 3
Manufacturer:	G.W. Lisk Company Incorporated 2 South Street Clifton Springs New York 14432 United States of America	

Additional Manufacturing location(s):
Lisk Ireland Manufacturing Limited
 Ennis Road
 Gort
 County Galway
 Ireland

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

- | | |
|---|--|
| IEC 60079-0 : 2011
Edition:6.0 | Explosive atmospheres - Part 0: General requirements |
| IEC 60079-18 : 2009
Edition:3 | Explosive atmospheres Part 18: Equipment protection by encapsulation "m" |
| IEC 60079-7 : 2006-07
Edition:4 | Explosive atmospheres - Part 7: Equipment protection by increased safety "e" |

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

GB/BAS/ExTR13.0206/00

Quality Assessment Report:

GB/BAS/QAR11.0009/02 GB/BAS/QAR14.0006/00



IECEx Certificate of Conformity

Certificate No: IECEx BAS 13.0093X

Issue No: 0

Date of Issue: 2014-05-16

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Type D/KXX-XXXXD-XX solenoids comprise an encapsulated solenoid coil and an increased safety terminal enclosure. The solenoid is fitted to a core tube which contains the solenoid armature. The core tube is provided with a mounting thread to customer specification. The solenoid is retained on the core tube by a spacer and nut. A bridge rectifier or four diodes and a thermal cut-out may optionally be provided within the encapsulation.

The stainless steel terminal enclosure contains a type MK 6/2 2 way terminal block to IEC05.0037U, and an internal earth facility. The enclosure has a cover with a gasket and up to two M20 cable entries.

The solenoids are available in three sizes. The coils are rated 6-250Vdc, 24-250Vac, and have a maximum stabilised wattage for the temperature classification and ambient temperature range for each size of solenoid as indicated below.

Solenoid size	Ambient temperature range	Maximum Power (W)		
		T4	T5	T6
2	-40°C to + 40°C	21.5	15.4	10.8
	-40°C to + 50°C	18.9	12.3	7.9
	-40°C to + 60°C	16.4	9.3	5.1
3	-40°C to + 40°C	22.2	16.4	11.4
	-40°C to + 50°C	19.5	13.0	8.4
	-40°C to + 60°C	16.8	9.9	5.5
4	-40°C to + 40°C	34.1	21.3	15.1
	-40°C to + 50°C	29.8	17.1	11.1
	-40°C to + 60°C	25.6	13.1	7.3

CONDITIONS OF CERTIFICATION: YES as shown below:

- 1 The solenoid must only be used on valve sizes with heat dissipation specified by the manufacturer of the solenoid in the instructions. The solenoid must be completely assembled with the valve before the solenoid is energised.
- 2 The solenoid and the valve on which it is mounted must not be thermally lagged.
- 3 The fluid flowing through the valve must not exceed the specified ambient temperature.
- 4 The solenoid shall be protected by a fuse rated for a prospective short circuit current of at least 1500A.



Issued: 16th May 2014
Page 1 of 1

Schedule to ATEX Quality Assurance Notification / IECEx Quality Assessment Report
Number: 3558
Issued to: Lisk Ireland Ltd

Products for which the company manufactures the product, but for which the following company controls the design:		
G.W. Lisk Company Inc - 0435		
Product Type Designation	Type Examination Certificate Number (Including ATEX)	IECEX Certificate of Conformity Number
Product category - Ex me		
The Type D/K XX-XD-XD Solenoids	Baseefa02ATEX0199X	IECEX BAS 13.0093X

Cert – Gaschedule – issue 7 - February 2008

Declaration of conformity - Solenoid



LISK IRELAND LIMITED



Ennis Road, Gort, Co. Galway, Ireland. Telephone: (353) 91-631711, 631101 Fax: (353) 91-633011

MANUFACTURERS STATEMENT

In Relation to:

INGRESS PROTECTION (IP) RATING OF



SOLENOIDS RATED FOR USE IN HAZARDOUS LOCATIONS

SOLENOIDS OF THE FOLLOWING DESIGNATION ARE CERTIFIED TO

HAVE AN

INGRESS PROTECTION RATING OF

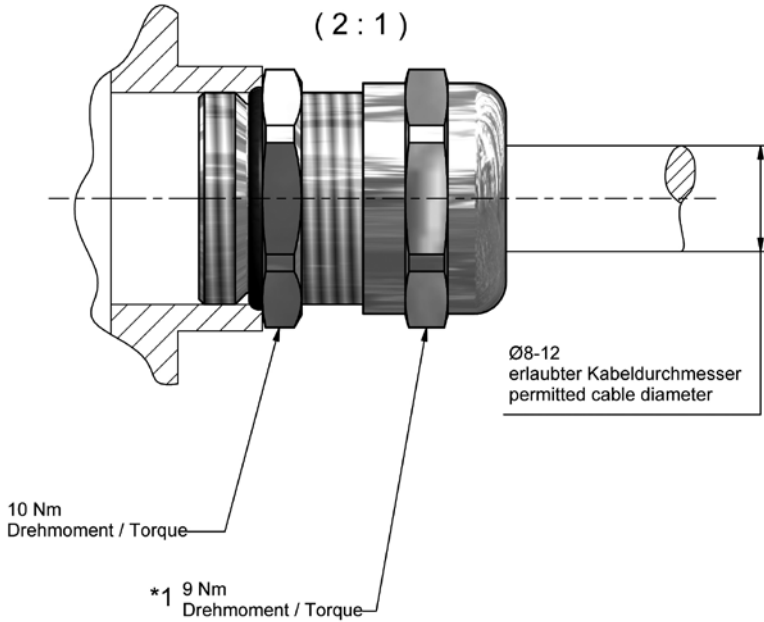
IP66 in accordance with BS5490

D10-****D-*, D12-****D-*, D14-****D-*, D15-****D-*,
D16-****D-*, D19-****D-*,
&
K10-****D-*, K12-****D-*, K14-****D-*, K15-****D-*,
K16-****D-*, K19-****D-*,

Engineering Manager.

March 2010.

Mounting instruction cable gland



*1 Für Auslieferung handfest angezogen.
For delivery mounted hand-tight.

Supersedes drawing number		Material	Raw part	ChangeECN- Nr. 0919/10
ISO/R 128 A		Property of PARKER HANNIFIN Not to be used; disclosed; or copied without its written consent. To be returned with all copies upon completion of authorized use.		
		Originator Brockmann	Date 24.08.2010	Parker Hannifin GmbH Hydraulic Controls Division Gutenbergstr. 38 41564 Kaarst (Germany)
Geometrical tolerancing acc. to DIN ISO 1101		1st. Approver Tschetschko	Date 24.08.2010	
Surface finish acc. to DIN ISO 1302		Scale 2:1	Units mm	
General tolerance acc. to DIN ISO 2768-m K		Title ATEX Kabelverschraubung		
Nominal size range (mm)	1 to 6	>6 to 30	>30 to 120	>120 to 400
		>400 to 1000	>1000 to 2000	
Tolerance	±0,1	±0,2	±0,3	±0,5
		±0,8	±1,2	
Sheet	1 / 1	Size	A4	Drawing number
				5005113
		Rev.	A	Prod. Stat.
				PR

