VAF
INSTRUMENTS

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TEST AND INSPECTION CERTIFICATE FLOW METER

Customer	VAF-Fluid-Technik-GMBH	VAF order no.	100107811
Country	Germany		
Ships name/Hull no.			
Customer order no.	11464		
Remarks		Customer tag	
Classification by	None		

Meter type	J5050 Flange DIN PN 16
Serial no.	619230
K-factor	0.80% (Meter factor)
Electrical output	0.000 p/l
Working pressure	16 bar
Test pressure @ 20°C	24 bar

Material internals	DUCTILE IRON & CARBON		
Material housing	DUCTILE IRON	Charge no.	01-13
Material front cover	DUCTILE IRON	Charge no.	469671
Material back cover	DUCTILE IRON	Charge no.	469671
Material flanges	DUCTILE IRON	Charge no.	

Standard values
The flowmeter is suitable for flows ranging from zero up to below mentioned capacities. The calibrated range with deviations can be found in the table.

Max. capacity 500 l/min (max 8 h/day) Cont. capacity 380 l/min (during 24/day)

Calibrated range

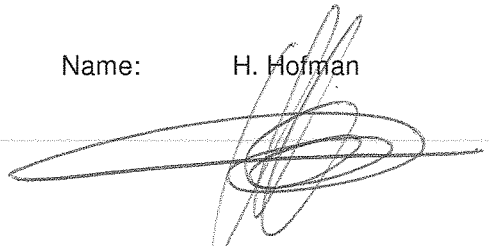
capacity		capacity		deviation *	
100.2	%	501.3	l/min	-0.08	%
39.7	%	198.6	l/min	0.09	%
9.6	%	48.2	l/min	-0.05	%
	%		l/min		%
	%		l/min		%
	%		l/min		%
	%		l/min		%
	%		l/min		%
	%		l/min		%
	%		l/min		%
	%		l/min		%

Cal. Unit PSTVAF1 Cert. 20100628 Cal.liquid INDUCO 4 Viscosity 5,4 mPa.s @ 20°C

* Deviation [%] = (Indicated volume – Reference volume) / Reference Volume * 100 %

We certify that the instrument covered by this certificate complies with the VAF Instruments B.V. manufacturing standards and has been inspected and tested in accordance with the standard procedures of VAF Instruments B.V.

Date: 13-09-2013 Name: H. Hofman



Jürgens

Jürgens Gießerei GmbH & Co. KG · P.O. Box 14 66 · D-48272 Emsdetten

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NIEDERLANDE

Zeugn.-Nr.	/	certif.no.	:	**201300199**
Datum	/	cert. date	:	14.02.2013
Bestellung	/	Y. order-no.	:	100118125
Best.-Datum	/	date of orde	:	06.12.2012
Auftrags-Nr.	/	order-no.	:	0040027.01
Lieferung	/	del. note	:	067542.01
Lief.-Datum	/	date del. no	:	13.02.2013
Seite	/	Page	:	1

Abnahmeprüfzeugnis 3.1 nach DIN EN 10 204
3.1 according to DIN EN 10 204

Artikel		: **HOUSING**	Zeichn.-Nr.	/ drawing no:	**0401-1386-2**
Werkstoff	/ material	: EN-GJS-400-18	Modell-Nr.	/ pattern no :	0401 - 1386
			Artikel-Nr.	/ article-no. :	25695

POS	*Anzahl Qty.*	*Charge Melt.-No.*	*Probe-Nr. Specimen*	*Kenn-Nr. Code*
1	*129*	*13.01261*		*01/13*

Chemische Analyse / Chemical Analysis

Charge batch	C %	Si %	Mn %	P %	S %	Cu %	Sn %	Mg %
13.01261	3.59	2.41	0.07	0.028	0.007	0.01	0.005	0.049

Mech.-techn.-Eigensch. / mechanical properties

Probenform (Zugversuch)	: DIN 50125	Probenform (Kerbschl.)	: ISO-V
Specimen Type (Tens. Str. Test)	DIN 50125	specimen type (Not.Imp.Test)	ISO-V
Probeabmessung	: B 10x50	KBS-Temperatur	: -20 °C
specimen dimension	B 10x50	KBS-temperature	
Härte	: Brinell		
Hardness	Brinell		

Kenn-Nr. Code	Rp N/mm^2	Rm N/mm^2	A5 %	Z %	Härte Hardness	KS 1 J	KS 2 J	KS 3 J	Av J
min	240	400	18.0		135	9	9	9	12
max					175				
01/13	268	402	26.6	26.0	162	15	15	14	15

Mit freundlichen Grüßen
Jürgens Gießerei GmbH & Co.KG
Abnahmebeauftragter des Herstellers

TUPY

Certificado

TEST CERTIFICATE

Nr. 469671

CUSTOMER..09544974 -MAATMETAAL ROTTERDAM BV
COMMERCIAL INVOICE.: 71895 DATE.: 26/07/2011 Nr. BARS.: 17
TUPY CODE.: 7B0223704 DESCRIPTION.: ROUND.170,0 X 3100 MM (GJS40015 - G
CAST DATE.: 07/07/2011 CLASS.: EN-GJS-400-15(DIN EN1563)

01 - AVERAGE CHEMICAL ANALYS (%)

C	- 3,5000 -	3,5900	Si	- 2,5500 -	2,7000
Mn	- 0,2000 -	0,2000	P	- 0,0530 -	0,0600
S	- 0,0100 -	0,0100	Cr	- 0,0500 -	0,0500
Cu	- 0,0400 -	0,0500	Mg	- 0,0420 -	0,0450

02 - HARDNESS RAN (HB)

Edge	Center
173 - 185	181 - 190

03 - MICROSTRUCTURE

MATRIX	Ferrite.....:	65 (%)
	Pearlite.....:	35 (%)
	Carbides.....:	(%)
GRAPHITE	Form.....:	VI
	Type.....:	-
	Size.....:	6-7
	Nodularization:	95 (%)

04 - MECHANICAL TESTS

Ultimate Tensile Strength :	510 MPa
Yield Strength .....:	354 MPa
Elongation .....:	11,0 (%)

P.S.: Metalographical and Mechanical Tests are made using test specimen taken from the mid radius of the bar

05 - DIMENSIONAL CONTR (mm)

170,2 - 172,5

JOINVILLE, AUGUST 03 , 2011

DILCO CARVALHO JUNIOR
LAB/PROCESS/QUALITY