

流量计量
技术

**FLOW MEASUREMENT
TECHNOLOGY**



**EF系列
SERIE EF**

▶ 铝质流量计 ECOFLOW系列

▶ ALUMINIUM-FLOW METER ECOFLOW SERIES



- EF 4
- EF 2
- EF 0.4
- EF 0.1
- EF 0.04

铝质流量计 ECOFLOW系列

• EF 系列和 VS,VHM 系列原理一样,均为齿轮啮合原理。EF系列可以计量各种介质,连接方式为管式连接。

• 集成的磁感头每个齿距输出一个脉冲信号,PNP或NPN。对应的体积如下:

体积/脉冲	规格
0,04 cm ³	EF 0.04
0,1 cm ³	EF 0.1
0,4 cm ³	EF 0.4
2 cm ³	EF 2
4 cm ³	EF 4

选项:

LCD流量显示屏,模拟输出,两个预设值输出。

- 脉冲频率与齿轮的分辨率成比例,齿轮由流体推动。
- 信号可由威仕(VSE)或第三方的仪表处理。EF系列适用于对精度,温度和压力要求不高的场合,相对 VS 系列,价格更便宜。

ALUMINIUM-FLOW METER ECOFLOW SERIES

• Based on the same meshing gear principle as the VSE series VS and VHM the Ecoflow sensor measures viscous media, however as in-line-device.

• An integrated, magnetoresistive pick-up with PNP or NPN-switching output produces one impulse per tooth with a worth of:

Volume / Impuls	Size
0.04 cm ³	EF 0.04
0.1 cm ³	EF 0.1
0.4 cm ³	EF 0.4
2 cm ³	EF 2
4 cm ³	EF 4

Option:

LCD-Flow display with analogue output and two limit values, mounted on the flow meter.

- The impulse frequency is proportional to the revolutions of the gear wheels, which are driven by the volume stream.
- The impulse processing is made by means of VSE-made or any other electronical readout. The Ecoflow is a low-priced alternative to the VS series for applications that require lower accuracy, temperature and pressure.

► 技术参数

► TECHNICAL DATA

	EF 0.04	EF 0.1	EF 0.4	EF 2	EF 4
流量范围 (升/分钟)	0,05 ... 4	0,1 ... 10	0,2 ... 30	0,5 ... 70	3,0 ... 150
Flow range l/min					
单位体积 (毫升/脉冲)	0,04	0,1	0,4	2,0	4,0
Flow volume cm³/pulse					
频率 (赫兹)	20,8 ... 1666,7	16,7 ... 1666,7	8,3 ... 1250,0	4,2 ... 583,3	12,5 ... 625,0
Frequency (Hz)					
K系数(脉冲/升)	大约 25 000	大约10 000	大约 2 500	大约 500	大约 250
K-Factor (pulse/l)					
精度 (21 mm²/s时)	2%	2%	2%	2%	3%
Accuracy at 21 mm²/s					
粘度范围 (mm²/s)	2 ... 2000	2 ... 2000	2 ... 5000	2 ... 7000	2 ... 10000
Viscosity range mm²/s					
最大工作压力	200巴(2900 磅每平方英寸) 200 bar (2900 psi)				
Max. operating pressure					
介质温度	0...80 摄氏度 (32...176华氏度) 0°C ... +80°C (32°F ... 176°F)				
Medium temperature					
安装位置	任意				
Mounting position					
过滤要求	20 微米	20 微米	50 微米	50 微米	100 微米
Filtering					
侧进管式安装	G 1/4"	G 3/8"	G 1/2"	G 3/4"	G 1"
Side Pipe connection					
重量	0,62 公斤	0,70 公斤	1,5 公斤	1,7 公斤	5,24 公斤
Weight					

► 材料

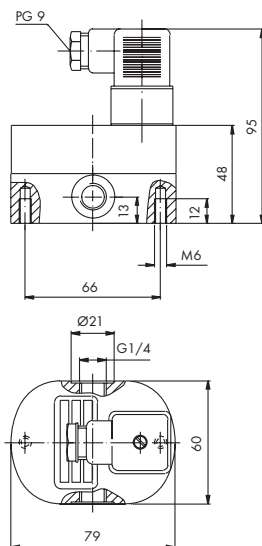
► MATERIALS

机身	铝质		
Body	Aluminium		
齿轮	不锈钢(440B)	EN-GJS-400-15	
Gear wheels	Stainless steel 1.4122	(DIN EN 1563)	
齿轮轴承	不锈钢滚珠轴承	DU滑动轴承	滚珠轴承或青铜滑动轴承
Wheel bearing	Ball bearing-stainless steel	DU-sleeve bearing	Ball bearing or bronze-sleeve bearing
密封材料	FPM (标准), NBR, PTFE 或 EPDM(可选)		
Seals	FPM (standard), NBR, PTFE or EPDM (option)		

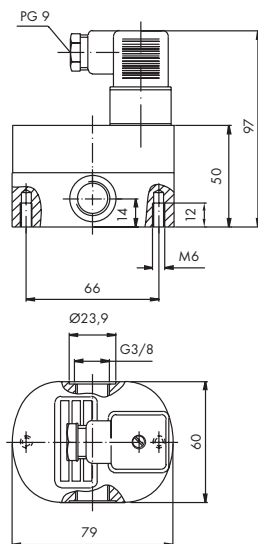
► 流量计尺寸图

► DIMENSIONS OF FLOW METERS

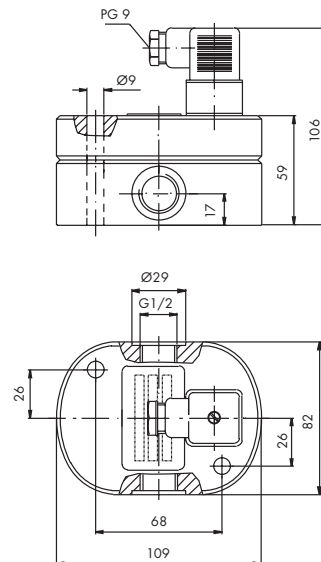
EF 0.04



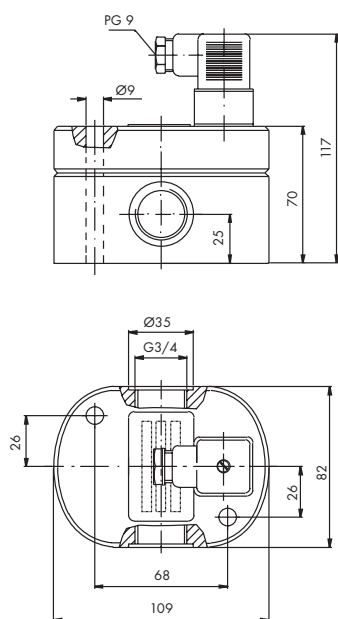
EF 0.1



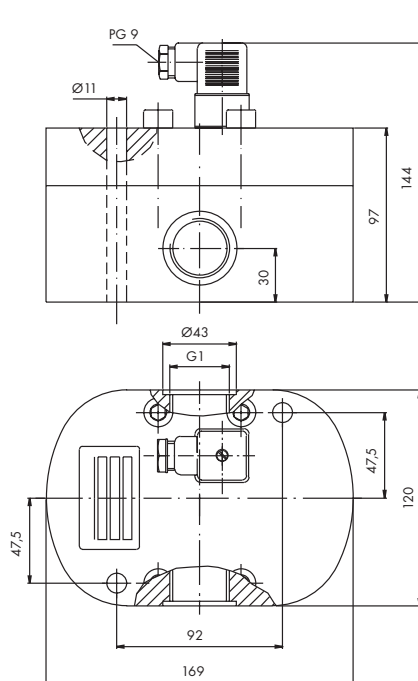
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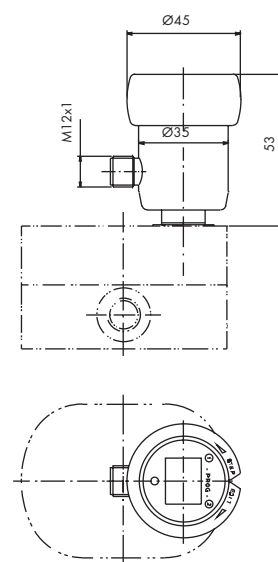
EF 2



EF 4



LCD 流量显示器
LCD-FLOW DISPLAY

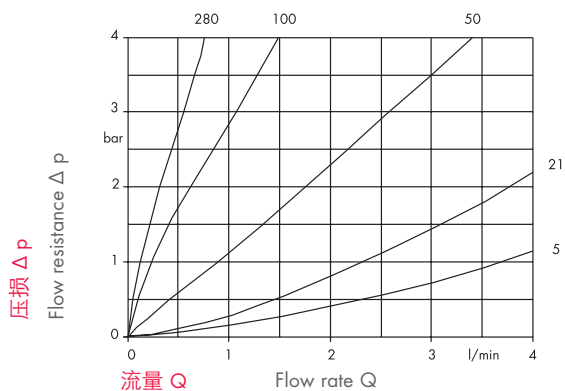




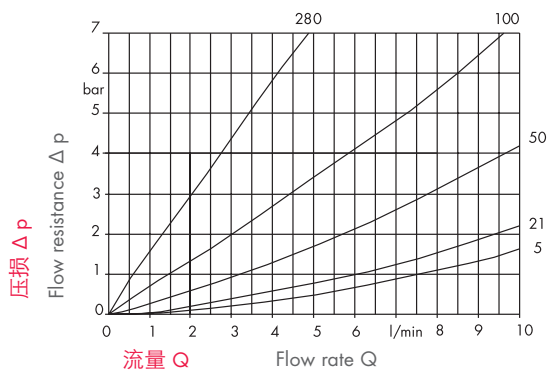
► 流量曲线

► FLOW RESPONSE CURVES

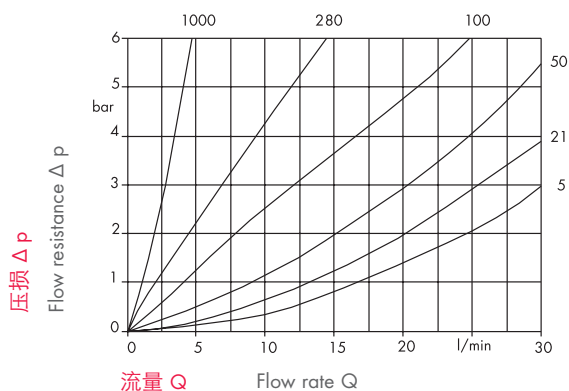
EF 0.04



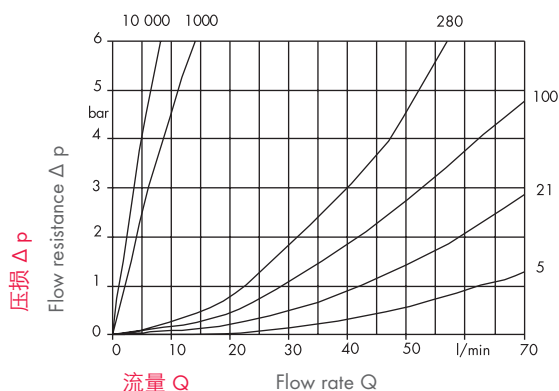
EF 0.1



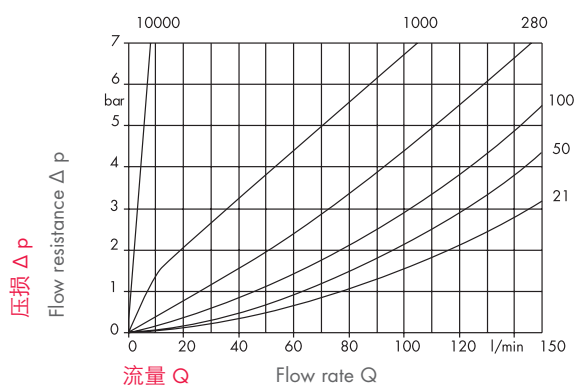
EF 0.4



EF 2



EF 4



粘度: mm²/s
Viscosity: mm²/s

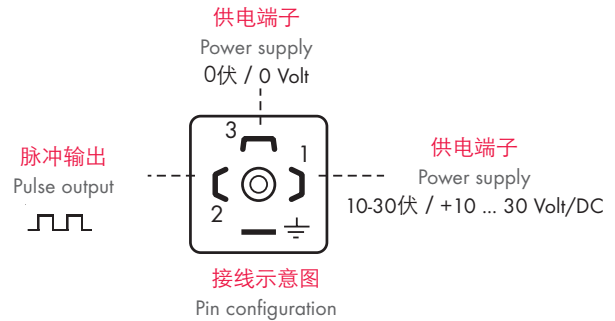
• 选择正确的型号和规格, 可以避免问题和故障的发生。我们的样品仅列举了标准的技术参数。具体的应用如粘度, 量程, 压力, 温度等参数千变万化, 请联系我们选择合适的流量计。

• For trouble-free and safe operation of the flow meters a correct selection of type and size is decisive. Due to the great number of different applications and flow meter versions, the technical data in the VSE-catalogues are of general character. Certain characteristics of the devices depend on type, size and measuring range as well as on the medium to be measured. For exact flow meter selection please contact VSE.

VSE

► 标准: EF流量计
带脉冲输出

► STANDARD: EF FLOW METER,
WITH PULSE OUTPUT



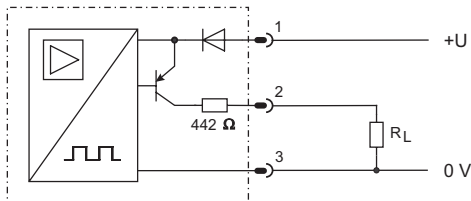
概述

- 非接触式的磁传感器检测齿轮的转动,然后放大器输出脉冲。每转动一个齿距输出一个脉冲,脉冲对应精确的齿容积。信号形式为PNP或NPN。频率与瞬时流量成比例。

DESCRIPTION

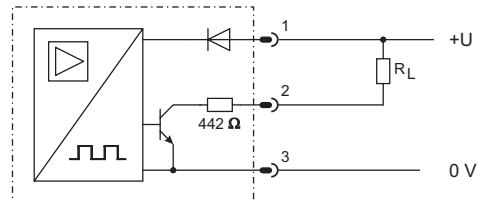
- The rotation of the flow meter gear wheels is sensed by a non-contact magnetoresistive pickup, amplified and emitted as pulses. The passing of each individual gear tooth produces a pulse corresponding to a precise positively displaced measured volume. The pulse output can be produced as PNP or NPN signals. The frequency is proportional to the momentary flow.

接线图



脉冲输出-NPN型

CONNECTION DIAGRAM



Impulsausgang - NPN Version Pulse output - NPN version

工作电源	10 - 30 伏(直流)	
Power supply	10 ... 30 Volts/DC	
电源消耗	10毫安(空载时)	
Power consumption	18 mA (no load)	
脉冲输出	PNP或NPN开关信号,最大20毫安 短路保护 (内置442欧电阻) 方波信号,0...1667赫兹,试流量计规格定。	
Pulse output	PNP or NPN switching, 20 mA max. Short-circuit-proof (internal protective resistor 442 Ω) Square wave signal, 0 ... 1667 Hz, depending upon flow meter size	
温度范围	0...80 摄氏度 (32...176华氏度)	
Temperature range	0°C ... +80°C (32°F ... 176°F)	
电气接线	正方形接口 (符合DIN EN 175301-803-A规范)	Square connector according to DIN EN 175301-803-A
Electrical connection	PG9 电缆直径 6-8毫米 线芯最大1.5平方毫米	Cable gland Pg9 Cable diameter 6 - 8 mm Wire gauge max. 1.5 mm ²
保护等级	IP65(含接头)	
Protection class	IP 65 (with mounted connection plug)	

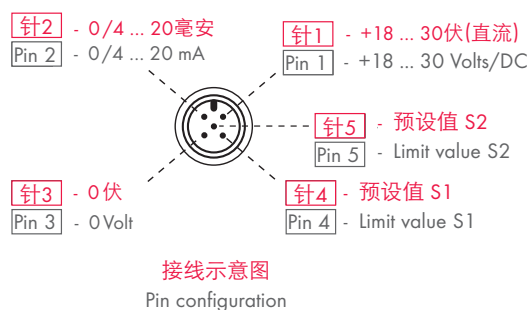
► 选项：LCD流量显示仪
含模拟输出和两个预设值



概述

• 流量显示仪可估算脉冲并在液晶屏上背光显示流量计规格。报警或目前状态通过红色LED灯和文字显示。测量值以模拟信号输出,0/4...20毫安,0/2...10伏四种形式可选。内置500欧姆电阻。预设值通过两个晶体管输出。

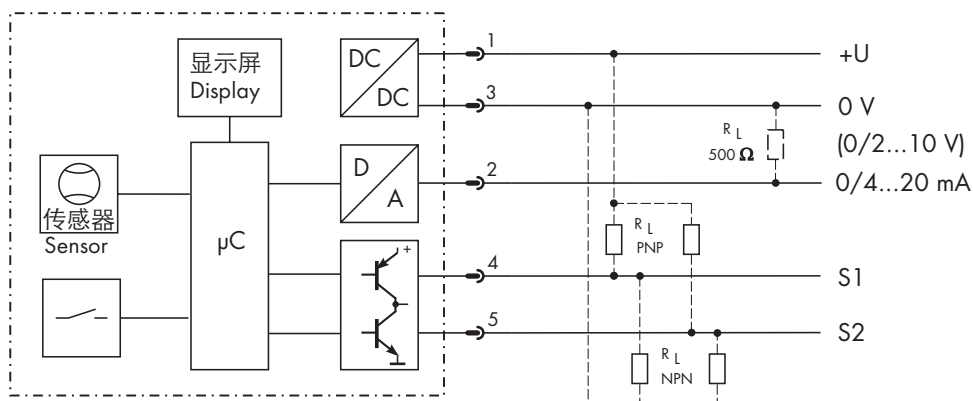
► OPTION: LCD-FLOW DISPLAY FOR EF,
WITH ANALOGUE OUTPUT AND TWO
LIMIT VALUES



DESCRIPTION

• The programmable flow display evaluates the pulses from the magnetoresistive pickup and shows the chosen units on a backlit LCD-display. Alarm and condition reports are signalled in the display by a red LED with additional text. The measured values are transmitted by means of an analogue output, 0 or 4 ... 20 mA, and 0 or 2 ... 10 Volt by means of a resistor (500 Ohm). The limit values are signalled through two transistor switching outputs.

接线图



显示屏	液晶背光显示,4位 显示数值, 尺寸和对话信息 红色,闪烁LED指示
Graphic display	LCD-display, 4-digit with backlit; Shows value, dimension and dialogue-message; red, flashing LED-Indicator
模拟输出	0 或 4 ... 20 毫安; 12 位 A/D变换器 (0 或 2 ... 10 伏, 外接 500 Ω 欧姆电阻)
Analogue output	0 or 4 ... 20 mA; 12 bit A/D-converter (0 or 2 ... 10 Volt, with external 500 Ω resistor)
切换点	S1 和 S2; 晶体管输出, 30 伏/最大100毫安 推挽式输出, PNP 或 NPN 可选 短路保护或反极性保护 数值滞后调整 and 方向调整
Switch points	S1 and S2; Transistor output 30 V/100 mA max. Push-pull output, PNP or NPN selectable with external connection Short-circuit proof and reverse-polarity proof Hysteresis adjustable in value and direction
工作电源	18 ... 30 伏(直流)/小于1瓦
Power supply	18 ... 30 Volt DC/<1 Watt
温度范围	0 ... 70 摄氏度 (32 ... 158 华氏度)
Temperature range	0°C ... +70°C (32°F ... 158°F)
电气接线	圆形接头 M12 x 1, 5芯
Electrical connection	Round connector M12 x 1, 5-pole
保护等级	IP 62
Protection class	
材料	303 不锈钢;无机玻璃屏幕 聚甲醛 (POM)设置环;氟橡胶密封圈
Material	Stainless steel 1.4305; mineral glass screen POM-programming ring; FPM-seals

附件	PUR 接线,5芯,5或10米 可选: VSE普通电缆,5芯
Accessory	PUR-connection, cable 5-pole shielded, 5 or 10 m long alternative: VSE-Normplug, 5-pole

- 特殊要求请咨询
- Special Designs on request.



► 型号编码

► TYPE CODE

Flow meter EF				EF /.	
EF 流量计	规格	0.05 ... 4 升/分钟 l/min.	= 0.04		= 系列(工厂决定) 1 = Series (works-determined) 1
	Size	0.1 ... 10 升/分钟 l/min.	= 0.1		
		0.2 ... 30 升/分钟 l/min.	= 0.4		
		0.5 ... 70 升/分钟 l/min.	= 2		
		3.0 ... 150 升/分钟 l/min.	= 4		
	材料	铝质(标准)	= A		PNP = PNP 脉冲输出 NPN = NPN 脉冲输出 LCD = LCD 液晶显示器 PNP = Pulse output PNP NPN = Pulse output NPN LCD = LCD-Flow Display
	Material	Aluminium (standard)	= A		
	连接方式	板式安装 ①	= P		
		管式安装	= R		
	Connection Type	Subplate ①	= P		
		Piping	= R		
	类型	标准	= 0		密封圈注解 FPM (≥ FKM) = 碳氟化合物 (FFKM) NBR = 丁晴橡胶 PTFE = 聚四氟乙烯 EPDM = 三元乙丙橡胶
		带显示仪 ①	= 2		
	Version	Standard	= 0		
		With display glas ①	= 2		
	轴承类型	滚珠轴承	= 1		Short term explanation to type of seals FPM (≥ FKM) = Fluorocarbon Rubber O-ring NBR = Acryl-Nitrile Butadiene Rubber O-ring PTFE = Polytetraflour Ethylene Rubber O-ring EPDM = Ethylen-Propylene Dien Rubber O-ring
		青铜滑动轴承	= 3		
		① ② DU滑动轴承	= 6		
		Gear bearings	= 1		
	Gear bearings	Ball bearing	= 1		
		Bronze-sleeve bearing	= 3		
	公差等级	减小公差	= 1		① 其它代码 = 特殊设计 ② 可按要求定做 ③ 视工况而定 ④ Other type no. = special design ⑤ Special design upon request ⑥ Works-determine to the application
		标准公差	= 2		
	Gear tolerance	加大公差	= 3		
		② 不锈钢轴承公差	= 4		
	密封材料	Reduced tolerance	= 1		
		Normal tolerance	= 2		
	Seal type	Increased tolerance	= 3		
		② Tolerance steel-plain bearing	= 4		
	密封材料	FPM (≥ FKM) 标准	= V		
		② NBR	= P		
	Seal type	PTFE	= T		
		② EPDM	= E		

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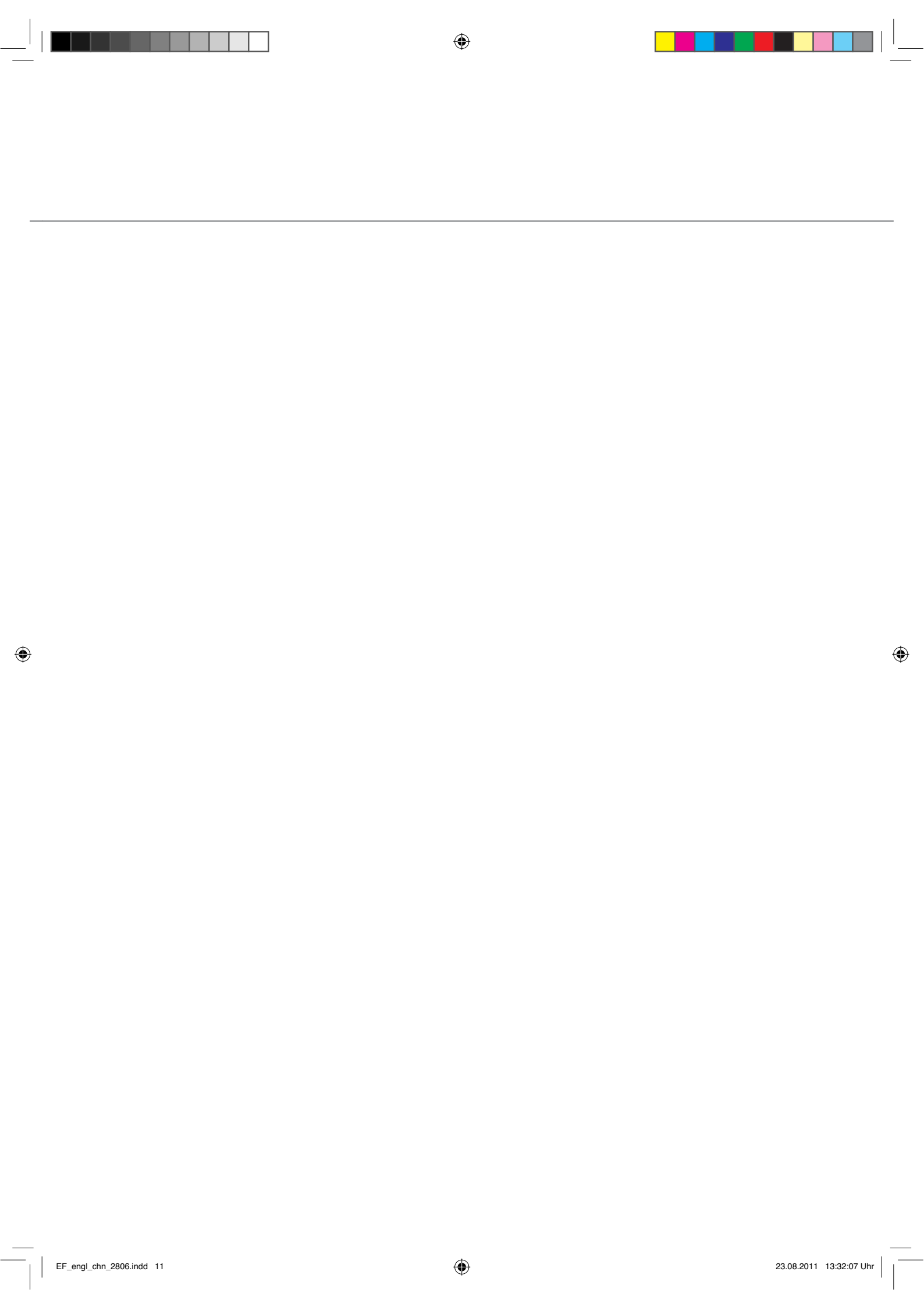
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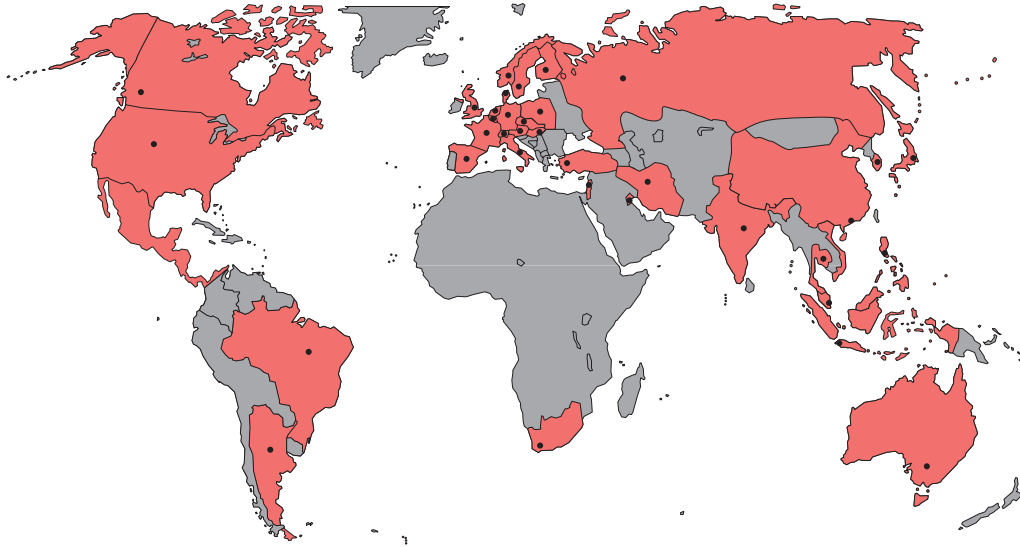


► 备注

► NOTES







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上海维特锐实业发展有限公司

上海市普陀区中江路889号1501室

电话: 021-52990500

传真: 021-52500777

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VSE Volumentechnik GmbH
Hönnestraße 49
58809 Neuenrade / Germany

VSE Volumentechnik GmbH
Postfach/P.O.Box 1229
58804 Neuenrade / Germany

VSE^{flow}
measurement

Phone +49 (0) 23 94 / 6 16-30
Fax +49 (0) 23 94 / 6 16-33

info@vse-flow.com
www.vse-flow.com

e.holding
FLUID TECHNOLOGY GROUP www.e-holding.de