

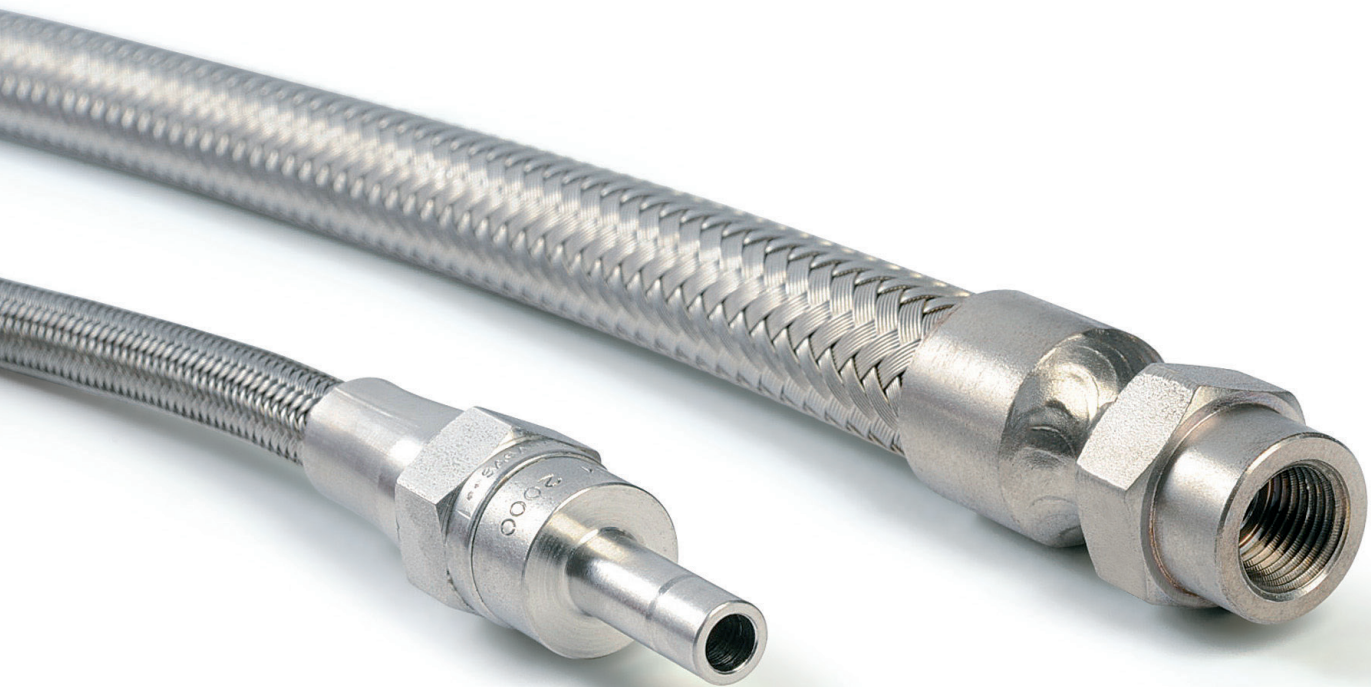


**ROTAREX**

VALVES - FITTINGS - REGULATORS



**FLOWTEKNIK**  
SCANDINAVIA APS



**PTFE AND STAINLESS STEEL HOSES**



# TABLE OF CONTENTS

## DESCRIPTION

ROTAREX® hoses guarantee the highest degree of safety. They are designed and certified in accordance with the latest standards in effect. ROTAREX® hoses allow connection of piping systems and equipment under some of the most severe pressure and/or temperature conditions. They can be easily installed through the use of adapters. There are 3 types of hoses based upon their composition and use.

FX01 hoses consist of a PTFE inner tube and a stainless steel single or double braid.

FX02 hoses consist of a 316L stainless steel inner tube and a stainless steel single or double braid.

FX06 hoses consist of a 316L stainless steel inner tube and a stainless steel double braid.

ROTAREX® hoses have a wide range of uses through the addition of various types of adapters of the ROTAREX® instrumentation line of products.

We recommend a safety cable above 1 meter of length. The safety cable is optional.

All hoses are individually tested hydraulically at 1.5 times the maximum working pressure.

## APPLICATIONS

ROTAREX® FX01, FX02 and FX06 hoses were designed for efficiency, security and convenience. ROTAREX® hoses are used for liquid and gas service or under ultra-vacuum in industries such as:

- chemical
- petrochemical
- gas
- energy
- paper mill
- research centers
- vacuum applications
- hydraulic systems
- pneumatic systems
- laboratories,
- etc...

## DESCRIPTION P.004

- Description of FX01 hoses P.004
- Description of FX02 hoses P.004
- Description of FX06 hoses P.005

## SPECIFICATIONS OF FX01, FX02 AND FX06 HOSES P.006

- Technical data P.006
- Corrective factors for increased temperature P.006
- Corrective factors for dynamic demand P.006
- Safety cable P.007

## ORDERING INFORMATION P.008

- Product configurator P.008
- Connection description P.009

## INSTALLATION P.012

## TECHNICAL DATA P.013

## FX01 | PTFE / STAINLESS STEEL HOSES

- **FX01** hoses consist of a PTFE inner tube and a double-braided stainless steel on the outside.

### SPECIFICATIONS

<b>Fluid media</b>	Liquids and gases compatible with PTFE and SS 316L (except acetylene and combustible gases)	<b>Max. working pressure</b>	see table page 6
<b>Inside diameter</b>	6 mm*, 10 mm*	<b>Burst pressure</b>	see table page 6
<b>Temperature range</b>	-50°C to +230°C	<b>Standard length (end connections not included)</b>	500 mm, 1000 mm, 1500 mm, 2000 mm
		<b>Certified max. leak Rate (at max. pressure)</b>	$\leq 1.10^{-3}$ mbar.l.s <sup>-1</sup>

\*double braid

### CONSTRUCTION MATERIAL

	Parts	Material
<b>Wetted parts</b>	Core / Inner tube	PTFE
	End connections	SS 316L
<b>Non-wetted parts</b>	Braid	SS 304L
	Safety cable (optional)	SS 316L

- **Important notice** : FX01 hoses have a restriction at every end since a nipple is inserted to perform the crimping. The table below summarizes the restrictions of the different hose diameters.

DN (mm)	6	10
Restriction diameter (mm)	3	6



Special demands available upon request

## FX02 | STAINLESS STEEL HOSES

- **FX02** hoses are high pressure hoses and consist of a 316L stainless steel corrugated inner tube and 304 stainless steel double-braided on the outside.

### SPECIFICATIONS

<b>Fluid media</b>	Liquids and gases compatible with SS 316L (except acetylene)	<b>Max. working pressure</b>	see table page 6
<b>Inside diameter</b>	6 mm*, 10 mm*	<b>Burst pressure</b>	see table page 6
<b>Temperature range</b>	-270°C to +600°C	<b>Standard length (end connections not included)</b>	500 mm, 1000 mm, 1500 mm, 2000 mm
		<b>Certified max. leak Rate (at max. pressure)</b>	$\leq 1.10^{-8}$ mbar.l.s <sup>-1</sup>

\*double braid

### CONSTRUCTION MATERIAL

	Parts	Material
<b>Wetted parts</b>	Core / Inner tube	SS 316L
	End connections	SS 316L
<b>Non-wetted parts</b>	Braid	SS 304L
	Safety cable (optional)	SS 316L



Special demands available upon request

## FX06 | STAINLESS STEEL HOSES

- **FX06** hoses are medium pressure hoses and consist of a 316L stainless steel corrugated inner tube and 304 stainless steel double braid on the outside.

### SPECIFICATIONS

<b>Fluid media</b>	Liquids and gases compatible with SS 316L (except acetylene)	<b>Max. working pressure</b>	see table page 6
<b>Inside diameter</b>	1/4", 3/8"	<b>Burst pressure</b>	see table page 6
<b>Temperature range</b>	-270°C to + 600°C	<b>Standard length (end connections not included)</b>	500 mm, 1000 mm, 1500 mm, 2000 mm
		<b>Certified max. leak Rate (at max. pressure)</b>	$\leq 1.10^{-8}$ mbar.l.s <sup>-1</sup>

### CONSTRUCTION MATERIAL

	Parts	Material
<b>Wetted parts</b>	Core / Inner tube	SS 316L
	End connections	SS 316L
<b>Non-wetted parts</b>	Braid	SS 304L
	Safety cable (optional)	SS 316L



Special demands available upon request

## SPECIFICATIONS OF FX01, FX02 AND FX06 HOSES

### TECHNICAL DATA

#### FX01

PTFE / Stainless Steel					
Tube nominal diameter	Inner diameter(mm)	Outer diameter (mm)	Max. working pressure at 20°C (bar)	Burst pressure at 20°C (bar)	Min. bend radius (mm)
DN 6	6,2	11,4	300	1200	60
DN 10	10,0	15,7	200	800	120

#### FX02

Stainless Steel						
Tube nominal diameter	Inner diameter(mm)	Outer diameter (mm)	Max. working pressure at 20°C (bar)	Burst pressure at 20°C (bar)	Min. bend radius (mm)	
					Static	Dynamic
DN 6	6,0	14,3	360	1440	30	190
DN 10	10,0	20,1	240	960	45	250

#### FX06

Stainless Steel						
Tube nominal diameter	Inner diameter(mm)	Outer diameter (mm)	Max. working pressure at 20°C (bar)	Burst pressure at 20°C (bar)	Min. bend radius (mm)	
					Static	Dynamic
DN ¼"	6,3	9,6	200	800	30	190
DN ⅜"	10,2	14,3	150	600	42	250

### CORRECTIVE FACTORS FOR INCREASED TEMPERATURE

#### FX01

Temperature (°C)	20	100	200	230
Corrective factor	1,00	1,00	0,70	0,70

#### FX02 AND FX06

Temperature (°C)	20	50	100	150	200	250	300	350	400	450	500	550
Corrective factor	1,00	0,90	0,73	0,67	0,61	0,58	0,53	0,51	0,50	0,49	0,47	0,47

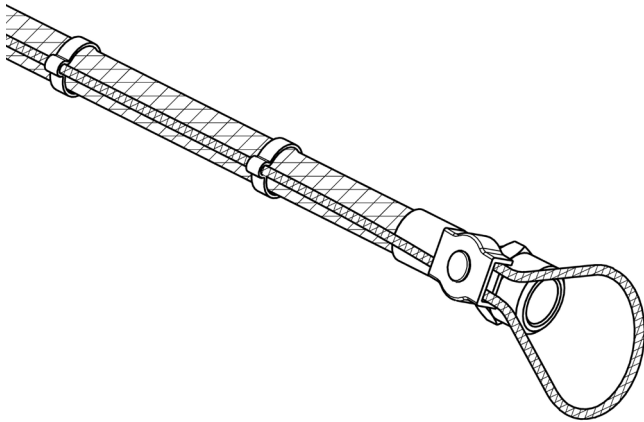
### CORRECTIVE FACTORS FOR DYNAMIC DEMAND

#### FX02 AND FX06

	Without vibration, low and slow motion	Low vibration, frequent uniform flow	Strong vibration, rhythmical ongoing motion
Stationary or slow uniform flow	1,00	1,00	0
Pulsating and swelling flow	0,80	0,64	0,32
Rhythmical and discontinuous flow	0,40	0,32	0,16

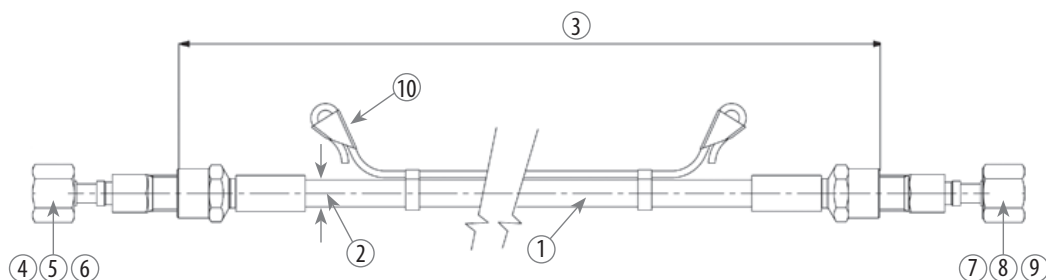
## SAFETY CABLE

---



We recommend a safety cable above 1 meter of length of the hose. The safety cable is optional for FX01, FX02 and FX06. Hoses for racks and switch over boards are standardly equipped with a stainless steel safety cable.

# PRODUCT CONFIGURATOR



1		2		3		4 & 7		5 & 8		6 & 9			
Type		Inner Diameter		Length		Type of connection		Size of connection or cylinder connection		Thread		Options	
FX01		DN6		0500		RB		6		N		C	
PTFE/stainless steel 304	FX01	6 mm	DN6	500 mm	0500	tube fitting	RB	6 mm	6	NPT	N	Safety cable (recommended)	C
Stainless steel 316L / 304	FX02	10 mm	DN10	1000 mm	1000	female pipe adapter	UF	10 mm	10	BSPP-RP	G	Elbow on cylinder side**	B
Stainless steel* 316L / 304	FX06	1/4"*	DN1/4	1500 mm	1500	male pipe adapter	UM	1/4 inch	1/4"	16 x 1,336 F	16	No safety cable, no elbow	A
		3/8"*	DN3/8	2000 mm	2000	tube adapter	ADB	3/8 inch	3/8"	G 3/8 - Female w/ rotating nut	G6		
				3000 mm	3000	female face seal fitting	RVF	1/2 inch	1/2"				
						male face seal fitting	RVM	cylinder connection					
						French Standard cylinder connection	NF						
						German cylinder connection	DIN						

\*FX06 Hoses uniquely available with DN1/4 and DN3/8 and vice versa

\*\*with safety cable

NB.: If a cylinder connection is required, please specify the connection and gas type.

Other: special, on demand, according to availability and required quantity

## EXAMPLE

REF.: FX01\DN06\1000\ADB6\UM1/4\T\C

is a hose with the following characteristics:

- PTFE tube, SS304L braid
- Length without adapters: 1000 mm
- Connections: 6 mm adapter for tube fitting on one side and 1/4" male BSPT on the other side
- Safety cable

## EXAMPLE

REF.: FX02\DN06\1000\BS/3/G6\B

is a hose with the following characteristics:

- SS316L tube, SS304L braid
- Length without adapters: 1000 mm
- Connections: elbow on the side of cylinder for a BS341-3 No. 3 Cylinder and on the other side G3/8 - Female w/ rotating nut
- Safety cable



# CONNECTIONS

## FX01

		METRIC		FRACTIONAL		
		6 mm	10 mm	6 mm	10 mm	
		6	10	1/4"	3/8"	1/2"
		DOUBLE BRAID		DOUBLE BRAID		
PTFE / Stainless Steel	RB	X	X	X	X	X
	UF	-	-	X	X	X
	UM	-	-	X	X	X
	ADB	X	X	X	X	X

x = possible configuration

## FX02

		METRIC		FRACTIONAL		
		6 mm	10 mm	6 mm	10 mm	
		6	10	1/4"	3/8"	1/2"
		DOUBLE BRAID		DOUBLE BRAID		
Stainless Steel	RB	X	X	X	X	X
	UF	-	-	X	X	X
	UM	-	-	X	X	X
	RVF	-	-	X	-	X
	RVM	-	-	X	-	X
	ADB	X	X	X	X	X

x = possible configuration

## FX06

		METRIC		FRACTIONAL		
		1/4"	3/8"	1/4"	3/8"	3/8"
		6	10	1/4"	3/8"	1/2"
Stainless Steel	RB	X	X	X	X	X
	UF	-	-	X	X	X
	UM	-	-	X	X	X
	RVF	-	-	X	-	X
	RVM	-	-	X	-	X
	ADB	X	X	X	X	X

x = possible configuration

## TYPES OF STANDARD THREADS

### TAPERED THREADS

**N : NPT** National Pipe Tapered seal is made on the thread. Thread sealant is required

### STRAIGHT OR PARALLEL THREADS

**G : BSPP** Whitworth cylindrical RP to ISO228/1, BS 2779, JIS B0202  
Metal-to-metal sealing to DIN 3852, Form B. O-ring sold separately

### MALE UNION

	1/4"	3/8"	1/2"
<b>NPT</b>	X	X	X
<b>G or RP</b>	X	X	X

x = possible configuration

### FEMALE UNION

	1/4"	3/8"	1/2"
<b>NPT</b>	X	X	X
<b>G or RP</b>	X	X	X

x = possible configuration

## GASKET TYPES\*

TYPE	WASHER MATERIAL
<b>FX01, FX02 &amp; FX06</b>	Nickel standard (others on request)

\*used with screwed connections



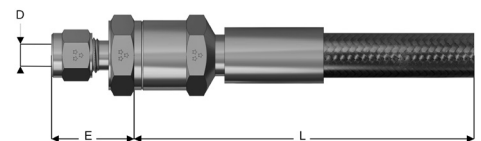
Please note that for carbon monoxide (CO) use, nickel washers must be replaced by copper washers as far as compatibility is concerned. Always specify gas type (or gas composition) in the inquiry.

## CONNECTION DESCRIPTION

### TUBE FITTING

#### RB

- Type: FX01, FX02 & FX06
- Dimensions: 6, 10 mm
- 1/4", 3/8", 1/2"

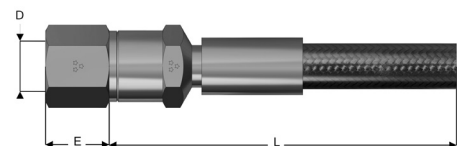


### FEMALE PIPE ADAPTER NPT / BSPT / BSPP

#### UF

- Type: FX01, FX02 & FX06
- Dimensions:
- 1/4", 3/8", 1/2"

**NOTE:** For threads BSPP 1/4", 3/8", 1/2", there is no crewed-on adapter or washer.



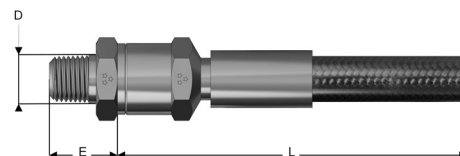
## CONNECTION DESCRIPTION

### MALE PIPE ADAPTER NPT / BSPP

(SEE TABLE OF STANDARD THREADS ON P. 10)

#### UM

- Type: FX01, FX02 & FX06
- Dimensions:  
1/4", 3/8", 1/2"

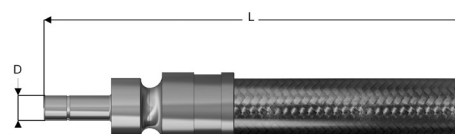


### TUBE ADAPTER

#### ADB

- Type: FX01, FX02 & FX06
- Dimensions: 6, 8, 10 mm
- 1/4", 3/8", 1/2"

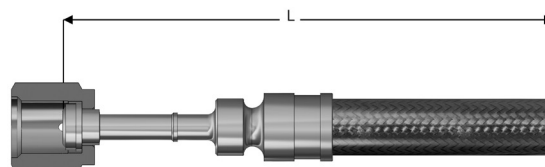
Each connector from our "Tube Fitting" catalog can be mounted on the type ADB Tube adapter to obtain any desired connection.



### GAZEL FITTING (FACE SEAL) FEMALE

#### RVF

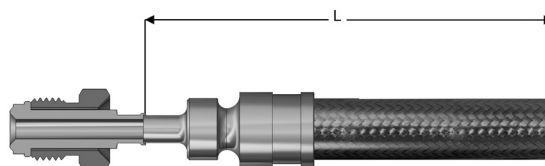
- Type: FX02
- Dimensions:  
1/4", 1/2"



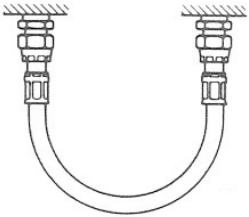
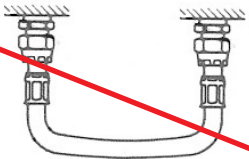
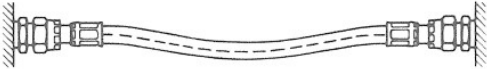

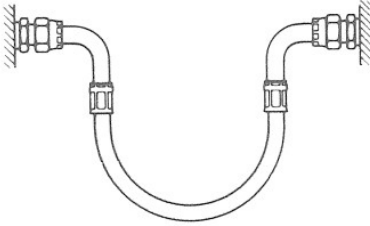
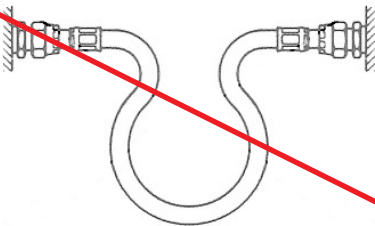
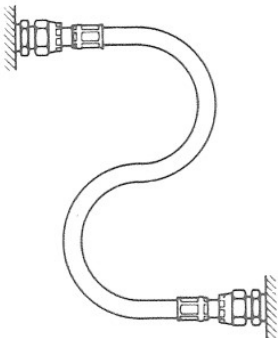
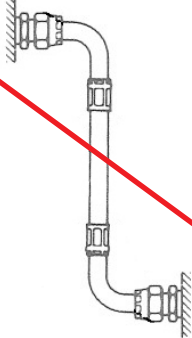
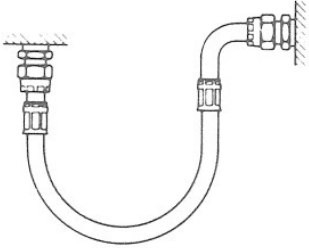
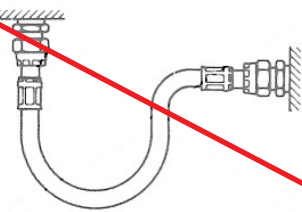
### GAZEL FITTING (FACE SEAL) MALE

#### RVM

- Type: FX02
- Dimensions:  
1/4", 1/2"



INSTRUCTIONS FOR PROPER INSTALLATION

RIGHT	WRONG
	
	
	
	
	

# TECHNICAL DATA

## UNITS

1 bar	=	14,50 psi	=	100 kPa.
1 psi	=	0.069 bar	=	6,89 kPa
1 kPa (ISO)	=	0.01 bar	=	0,1451 psi
1 Kg/cm <sup>2</sup>	=	0.980 bar	=	14,22 psi = 98 kPa
T° C (C : Celsius)	=	(T°F - 32) / 1.8	=	T°K - 273,15
T° F (F : Fahrenheit)	=	(1.8 x T°C) + 32	=	(1.8 x T°K) + 523,69
T° K (K : Kelvin)	=	T°C + 273.16	=	(T°F / 1.8) + 255,38
T° R (R : Rankine)	=	(1.8 x T°C) + 491.69	=	T°F + 459,69
1 inch	=	25.4 mm		
1 mm	=	0.045 inch		

## NORMS TAPERED

### Tapered (ISO 7/1)

NPT(National Pipe Tapered) NFE 03-601



### Parallel (ISO228/1)

BSPP (Whitworth) : NFE 03-005



## THREAD PRESSURE RATINGS - BRASS

MALE THREAD										
F	1/16"	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Bar →	379	345	276	269	262	248	179	-	-	-
Psi →	5500	5000	4000	3900	3800	3600	2600	-	-	-

FEMALE THREAD										
F	1/16"	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Bar →	227	221	227	179	165	159	152	-	-	-
Psi →	3300	3200	3300	2600	2400	2300	2200	-	-	-

## THREAD PRESSURE RATINGS - STAINLESS STEEL 316L

MALE THREAD										
F	1/16"	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Bar →	717	648	517	503	496	469	345	393	324	248
Psi →	10400	9400	7500	7300	7200	6800	5000	5700	4700	3600

FEMALE THREAD										
F	1/16"	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Bar →	434	420	427	345	317	296	283	324	296	255
Psi →	6300	6100	6200	5000	4600	4300	4100	4700	4300	3700

# A FULL LINE OF GAS CONTROL SOLUTIONS



## COMPLETE SOLUTIONS FROM SOURCE TO PROCESS.

ROTAREX is helping engineers worldwide to get better gas results: from ultra high purity production and medical care facilities to industrial and LPG applications, as well as alternative energy vehicles, fire suppression, diving, aerospace, cryogenics, laboratory, petro-chemical and welding. ROTAREX applies over 90 years of know-how and experience to custom design, develop and manufacture the high performance valves, regulators and fittings to suit your needs, all in one hand. Discover the difference ROTAREX can make in your world.

**CYLINDER VALVES**

**EQUIPMENT**

**FIRETEC**

**AUTOMOTIVE**

**LPG/SRG**

**MEDITEC**



**ULTRA HIGH PURITY VALVES**



**MEDICAL VALVES & EQUIPMENT**



**INDUSTRIAL CYLINDER VALVES**



**REFRIGERANT CYLINDER VALVES**



**PRESSURE REGULATORS**



**SUPPLY & SWITCH OVER BOARDS**



**LINE VALVES**



**FITTINGS & ADAPTORS**



**FIXED INSTALLATION  
FIRE SYSTEMS**



**OBJECT FIRE SUPPRESSION  
SYSTEMS**



**AUTOMOTIVE VALVES  
& REGULATORS**



**WATER CARBONATION**



**LPG TANK VALVES  
& REGULATORS**



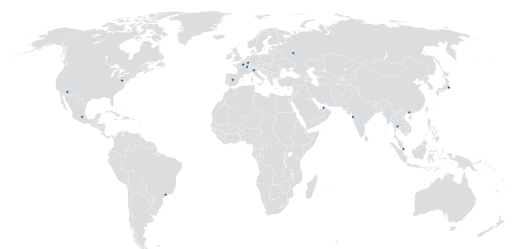
**LPG CYLINDER VALVES  
& REGULATORS**



**DIGITAL MEASUREMENT  
SYSTEMS**

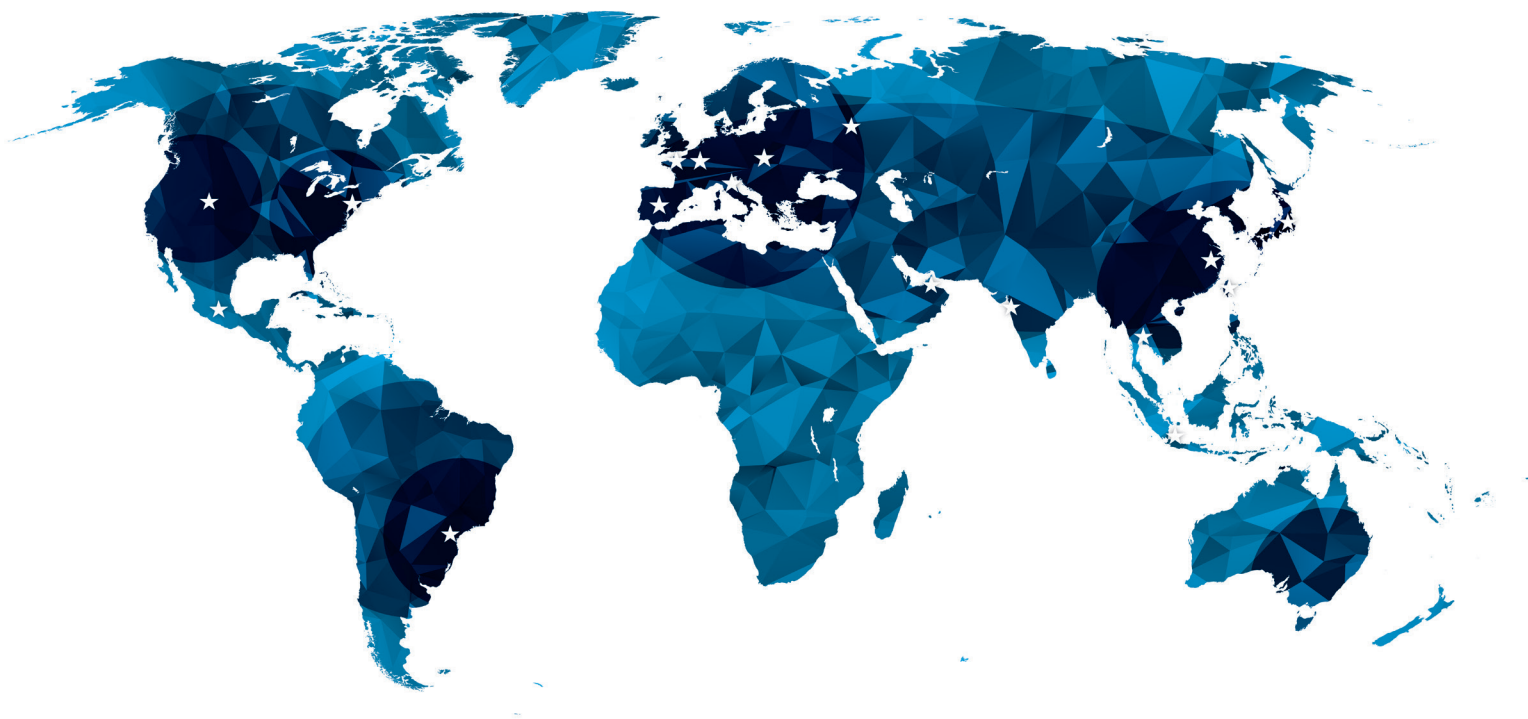


**PLASTIC INJECTION MOULDING**



## WORLDWIDE HEADQUARTERS

**ROTAREX S.A.**  
24, rue de Diekirch,  
L-7440 Lintgen  
Luxembourg  
Tel.: +352 32 78 32-1  
Fax: +352 32 78 32-854  
E-mail: info@rotarex.com



## REGIONAL / COUNTRY HEADQUARTERS

### NORTH AMERICA

**USA**  
Rotarex North America  
Hackettstown  
E-mail: northamerica@rotarex.com

### SOUTH AMERICA

**BRASIL**  
Rotarex Brazil Ltda  
São Paulo  
E-mail: brasil@rotarex.com

### CENTRAL AMERICA

**MEXICO**  
Rotarex México  
Mexico City  
E-mail: mexico@rotarex.com

### EUROPE

#### EUROPEAN HEADQUARTERS

Rotarex S.A. Luxembourg  
24, rue de Diekirch,  
L-7440 Lintgen, Luxembourg  
Tel.: +352 32 78 32-1  
E-mail: salesequipment@rotarex.com

#### UNITED KINGDOM

Rotarex (UK) Ltd.  
Norwich  
E-mail: uk@rotarex.com

#### ITALY

Rotarex Italia S.r.l.  
Ciliverghe di Mazzano  
E-mail: italia@rotarex.com

#### SPAIN

Rotarex Spain  
Madrid  
E-mail: spain@rotarex.com

#### RUSSIA

Rotarex Rus  
Moscow  
E-mail: russia@rotarex.com

#### POLAND

Rotarex Polska  
Brzeg  
E-mail: polska@rotarex.com

### ASIA - PACIFIC

#### SINGAPORE

Rotarex Fareast Pte Ltd  
Singapore  
E-mail: fareast@rotarex.com

#### CHINA

Rotarex Star  
Shanghai  
E-mail: china@rotarex.com

#### JAPAN

Rotarex Japan Ltd  
Tokyo  
E-mail: japan@rotarex.com

#### INDIA

Rotarex ENGG. PVT. LTD.  
Mumbai  
E-mail: india@rotarex.com

### MIDDLE EAST / AFRICA

#### MIDDLE EAST

Rotarex Middle East  
Dubai  
E-mail: middle-east@rotarex.com

**FLOWTEKNIK**  
SCANDINAVIA APS  


RUGVÆNGET 19 C  
2630 TAASTRUP  
INFO@PGFLOWTEKNIK.DK  
WWW.PGFLOWTEKNIK.DK



For more contact details go to  
[www.rotarex.com/locations](http://www.rotarex.com/locations)