

## ACTUATORS VALVE GEARS



**ATEX / IECEx**  
Richtlinie 94/9/EC  
01 220 10 3010

### ELECTRIC MULTI-TURN ACTUATORS



Special characteristics:

- easy attachment to actuator
  - long service life
  - extremely reliable of operation
  - simple maintenance
  - high efficiency and economical operation
  - low weight, housing and cover are made of special aluminium
  - M.A.D. - Actuators are developed in a modular system
- The electric multi-turn actuators are designet for nominal torque ranges and nominal speed ranges short-time operation S2-KB 15 min to VDE 0530.  
Designet for explosion protected areas.

#### OPEN-CLOSE DUTY ACTUATORS

Model: MA 0-6 to MA 4-150  
Torque range: 30 Nm to 1500 Nm  
Speed range: 10 rpm to 180 rpm  
Ambient temp.: normal -25°C +50°C; max. -50°C +50°C low temperature.  
Other temperatures available on request  
Mounting dimensions: to EN ISO 5210 respectively DIN 3210

#### REGULATING ACTUATORS

RMA 0-3 to RMA 4-100  
20 Nm to 800 Nm  
10 rpm to 100 rpm

Certificate for Explosion protection  
II 2G Ex de II CT4 of TÜV,  
Directive ATEX, 94/9 EC  
protection to european norm  
EN 50 014, 50 018, 50 019,  
50 020, 1127-1, 13-463-1

### ELECTRONIC MULTI-TURN ACTUATORS

intelligent-frequency



#### OPEN-CLOSE DUTY ACTUATORS

Model: MAF 3 to MAF 100  
Torque range: 30 Nm to 1000 Nm  
Speed range: 10 rpm to 180 rpm  
Ambient temp.: normal -25°C +50°C . Other temperatures available on request  
Mounting dimensions. : to EN ISO 5210 respectively DIN 3210

#### REGULATING ACTUATORS

RMAF 2 to RMAF 80  
20 Nm to 800 Nm  
10 rpm to 100 rpm

### ELECTRO-PNEUMATIC MULTI-TURN ACTUATORS

with control unit

Model: EPMA 0-6 to EPMA 3-100



The ELECTRO-PNEUMATIC MULTI-TURN ACTUATORS are as well as designed for dedicated medium driving. Input power are air, nitrogen or gas

The PNEUMATIC MULTI-TURN ACTUATORS are designed for nominal torque ranges and nominal speed ranges short-time operation S2.KB 10min. to VDE 0530. Employment inside of explosion endanger ranges. Certificate for Explosion protection II 2G Ex de II CT4 of TÜV, Directive ATEX, 94/9 EC protection to european norm EN 50 014, 50 018, 50 019, 50 020, 1127-1.13-463-1

### LINEAR-ACTUATORS

TYP MA06A0 60-SE6 bis MA2-50A2 64 -SE 50

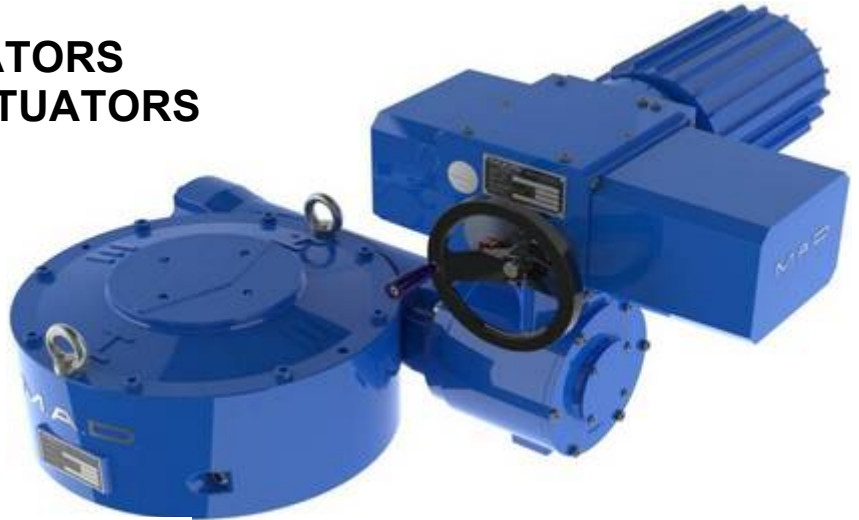


The LINEAR-ACTUATORS are designed for nominal thrust (torque) and max. stroke for short-time operation S2-KB 15 min. to VDE 0530. Employment inside of explosion endanger ranges. Certificate for Explosion protection II 2G Ex de II CT4 of TÜV, Directive ATEX, 94/9 EC protection to european norm EN 50 014, 50 018, 50 019,50 020, 1127-1.13-463-1

Model: MA 06 A0 50-SE 6 to MA 2-50 A2 64-SE 50  
Thrust: 5 KN to 100 KN  
Stroke: 50 mm to 100 mm, other strokes avail. on request  
Ambient temp.: normal -25°C +50°C; max. -50°C +50°C low temperature.  
Other temperatures available on request

## ELECTRO-PART-TURN ACTUATORS ELECTRONIC-PART-TURN ACTUATORS

The **ELECTRO-** and **ELECTRONIC-PART-TURN ACTUATORS** are designed for nominal torque ranges and nominal speed ranges short-time operation S2-KB 10 min. to VDE 0530. Regulating operation S4 – 25% ED to VDE 0530, max. 600 c/h according to torque range. Ambient temperature: normal –25°C +50°C, max. –50°C +50°C low temperature  
Other temperatures available on request



### OPEN-CLOSE DUTY OPERATION

Model: MA 0-6 to MA 3 MSG 100 to MSG 35000  
MAF 3 to MAF 1000 MSG 100 to MSG 35000  
Torque range: 1000 Nm to 350000 Nm  
Swing angle: 90° to 360°  
Mounting dimensions: to EN ISO 5211

### REGULATING OPERATION

RMA 0-3 to RMA3-80 MSG 50 R to MSG 5000 R  
RMAF 2 to RMAF 80 MSG 50 R to MSG 5000 R  
500 Nm to 50000 Nm  
90° to 360°  
to EN ISO 5211

## ELECTRO-PNEUMATIC-PART-TURN ACTUATORS with control unit

The **ELECTRO-PNEUMATIC-PART-TURN ACTUATORS** are designed for nominal torque ranges and nominal speed ranges short-time operation S2-KB 10 min. to VDE 0530. Certificate for Explosion protection II 2G Ex de II CT4 of TÜV, Directive ATEX, 94/9 EC protection to european norm EN 50 014, 50 018, 50 019, 50 020, 1127-1, 13-463-1

Model: EPMA0-6 MSG100 to EPMA3 MSG5000  
Torque range: 1000 Nm to 50000 Nm  
Swing angle: 90° to 360°  
Ambient temp.: normal –25°C +50°C;  
Max. –50°C +50°C low temperature,  
other temperatures available on request  
Mounting dimensions: to EN ISO 5211



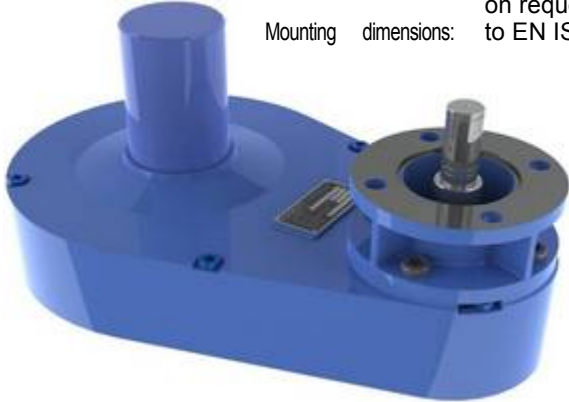
**M.A.D.** - Series production after mounting

Electro-pneumatic-part-turn actuators



## MULTI-TURNGEARS SPUR GEARBOXES

Model: MST 0 to MST 8  
 Torque range: 100 Nm to 40 000 Nm  
 Speed range: max. input range 120 rpm,  
 other speed ranges available  
 on request  
 Mounting dimensions: to EN ISO 5210



## BEVEL GEARBOXES



Model: Mk 0 to MK 6  
 Torque range: 100 Nm to 10000 Nm  
 Speed range: max. input range 120 rpm,  
 other speed ranges available  
 on request  
 Mounting dimensions: to EN ISO 5210

All gearwheels and shafts run in ball bearings, transmission efficiency: approx. 95%  
 Big range of reduction ratios. The gearboxes are reinforced by ribs and resistant against twisting.  
 M.A.D. valve gears feature a Class 8 quality of toothings and are rated for a short-time duty of S2 – KB 15 min. to VDE 0530 Regulating  
 operation available on request.  
 The series gearboxes are manufactured from grey cast-iron GJL-250 (GG), or optional from  
 ductile cast-iron (GGG)

## NUCLEARPOWERSTATIONGEARBOXES



**SPUR GEARBOXES**

Model:  
 SPUR GEARBOXES Typ NUMST-S  
 BEVEL GEARBOXES Typ NUMK-S  
 WORM GEARBOXES Typ NUMSG-S  
 Torque range: 1 000 Nm to 120 000 Nm  
 Speed range: 20 rpm to 180 rpm  
 Ratio: i = 2:1 to 26  
 Ambient temperature: -10°C to +80°C  
 Earthquake proof calculation: 6g – 30g to KTA3504



**SPUR GEARBOXES**



**WORM GEARBOX**



**BEVEL GEARBOX**



## WORMGEARS

Open-closed duty- and regulating operation  
For direct mounting on valves  
and mounting of multi-turn actuators

Mounting dimensions: to EN ISO 5211  
Ambient temperature: normal - 25°C + 80°C  
Other temperatures available on request

The **VALVE WORM GEARS** are designed for nominal torque ranges and nominal speed ranges short-time operation S2-KB 10min to VDE 0530.

Calculate control operation to S4 – 25% ED to VDE 0530, max. 600c/h according to torque range.

Model: MSG 100-S to MSG 10000-S duty operation  
Model: MSG 50-R to MSG 5000-R regulating operation  
Torque range: 1000 Nm to 100 000 Nm max. to 350 000 Nm duty operation  
Torque range: 500 Nm to 50 000 Nm regulating operation  
Swing angle: 90° to 360°  
Speed range: max. input range 100 rpm, other speed ranges available on request

## WORMGEARS

Open-closed duty- and  
regulating operation  
with foot, lever and external limit stops  
and mounting of multi-turn actuators



Model:  
MSG 100-FHA-S to MSG 10000-FHA-S  
Torque range:  
1000 Nm to 100 000 Nm duty operation

Model:  
MSG 50-FHA-R to MSG 5000-FHA-R  
Torque range:  
500 Nm to 50 000 Nm regulating operation

Ambient temperature: normal - 25°C + 80°C  
Other temperatures available on request



Swing angle: 90° to 360°  
Speed range: max. input range 100 rpm, other speed ranges available on request  
Mounting dimensions: Input shaft and flange according to EN ISO 5210

We reserve the right to alter data according to improvements made