



**Spring return  
pneumatic actuators**

**DYNACTAIR 1.5, 3, 6, 12 and 25 :  
rack and pinion kinematics**

**DYNACTAIR 50 and 100 :  
scotch-yoke kinematics**

**DYNACTAIR 200, 400 and 800 :  
yoke AMRI patented kinematics**

**Output torques up to 8800 Nm**

## General features

Designed for the automation of ¼ turn valves (butterfly valves, ball valves), the DYNACTAIR series of spring return pneumatic actuators and their AMTROBOX/AMTRONIC/SMARTRONIC box are involved in all the functions of control and supervision encountered in all modern processes, and more particularly in communication by fieldbus.

3 kinematics are used for the actuators operation:

- rack and pinion kinematics for DYNACTAIR 1.5, DYNACTAIR 3, DYNACTAIR 6, DYNACTAIR 12 and DYNACTAIR 25,
- scotch-yoke kinematics for DYNACTAIR 50 and DYNACTAIR 100,
- yoke AMRI patented kinematics for DYNACTAIR 200, DYNACTAIR 400 and DYNACTAIR 800.

The mounting interface is in accordance with ISO 5211 standard.

Equipped with an interchangeable insert, they can be easily fitted on different valve shaft (square end, flat end, key).

In standard version, the DYNACTAIR actuators are equipped with a visual pointer and adjustable mechanical travel stops:

- on closed **or** on open position for DYNACTAIR 1.5 to 100 (see pages 6 and 7),
- on closed **and** on open position for DYNACTAIR 200 to 800.

The actuator is mounted directly or by means of an adaptator on ¼ turn valve plate.

## Protection:

They are hose and fine dust proof (protection degree equivalent to IP 65).

## External coating:

DYNACTAIR 1.5 to 100: housing with 50 µm thickness hard anodization and cylinder head with black cataphoresis coating 30 µm.  
DYNACTAIR 200 to 800: polyurethane paint, thickness 80 µm, colour dark grey RAL 7016.

## Working temperature :

From –20° C up to +80° C: standard version,

Alternative construction for DYNACTAIR 1.5 to 100:

- 40° to +80°C: dynamic O-rings in special Nitrile,
- 20° to +120°C: dynamic O-rings in Viton (available with corrosive motive medium).

Other working temperature range for DYNACTAIR 200 to 800: Please consult us.

## Standard variant:

ATEX version in accordance with 94/9/EC directive.

This spring return actuator range is completed by the ACTAIR series of double acting pneumatic actuators. Please consult type series booklet ACTAIR 1.5 to 1600 pneumatic actuators, ref. 8515.1.

## Production range

DYNACTAIR Type	ISO 5211 mounting plate *	Maximum allowable dimensions for the shaft			
		Height	Driving by square	Diameter Driving by flat	Driving by key
1.5	F04 or F05+F04 (45°)*	24	11	11	Please, consult us
3	F05 – F07	30	16	14	
6	F05 – F07	32	19	17	
12	F07 – F10	40	22	22	
25	F10 – F12	45	27	27	
50	F10 – F12	55	36	36	
100	F14	65	50	46	
200	F16	80	60	55	
400	F16	80	60	55	
800	F16 – F25	95	70	75	

\* Direct adaptation onto identical mounting plate.

Adaptation by intermediate flange onto different plate (different size or shape).

## Control fluid supply

Air or any neutral gas, filtered, dry or lubricated:

- filtration: 50  $\mu\text{m}$ ,
- drying: dew point at max. working pressure  $\leq 4^\circ\text{C}$  and min. temperature  $-5^\circ\text{C}$

If a lubrication is required - the lubrication increases the actuator life - the use of a non detergent oil without aggressive additive is recommended:

- viscosity 2 to 3° ENGLER at  $50^\circ\text{C}$
- aniline point  $90^\circ\text{C}$  to  $105^\circ\text{C}$
- flow 1 to 3 drop for 500 NL/mn.

## Operating times

The table below defines the minimum operating times under 5 bar control air pressure and the operation rates per minute for DYNACTAIR actuators on/off function.

DYNACTAIR type	Minimum operating time			Operation rates per minute
	On/off function			
	DYNACTAIR + AMTRONIC	DYNACTAIR with distributor ISO-1 or NAMUR fitted onto the housing	DYNACTAIR direct connection	
1.5	2 seconds	2 seconds		30 maxi
3	2 seconds	2 seconds		30 maxi
6	2 seconds	2 seconds		30 maxi
12	4 seconds	2 seconds		15 maxi
25	6 seconds	3,5 seconds		10 maxi
50	10 seconds	5 seconds		6 maxi
100	15 seconds	8 seconds		4 maxi
200	45 seconds	30 seconds	15 seconds	2 maxi
400	90 seconds	45 seconds	30 seconds	1 maxi
800	180 seconds	90 seconds	40 seconds	0,5 maxi

On request, adjust construction for :

- other operation times,
- high operation rates.

Please consult us.

## Capacity

DYNACTAIR type	Capacity in $\text{cm}^3$
1.5	240
3	570
6	1180
12	2400
25	4700
50	5280
100	9800
200	25000
400	50000
800	92000

## Safety function

In standard version, the DYNACTAIR actuators are designed to ensure valve closure in case of lack of control fluid pressure.

On request, valve opening by lack of control fluid is available.

The opening function by lack of control fluid differentiates itself from the closing function by a different mounting of the kinematics (refer to pages 6 to 9) and by a more or less powerful construction of the energy accumulator (refer to pages 4 and 5).

Due to these differences of construction, the use of a closing function actuator instead of an opening function actuator (and vice versa) can cause some hazards during operation such as the impossibility to operate the valve or operation in the wrong direction. For these reasons, it is strongly inadvisable to try to change from one type of actuator to the other.

## Output torque (Nm) relating to the control fluid pressure and the safety function

To ensure the safety function (closing or opening) in case of lack of control fluid, the DYNACTAIR spring return pneumatic actuators are equipped with an energy accumulator.

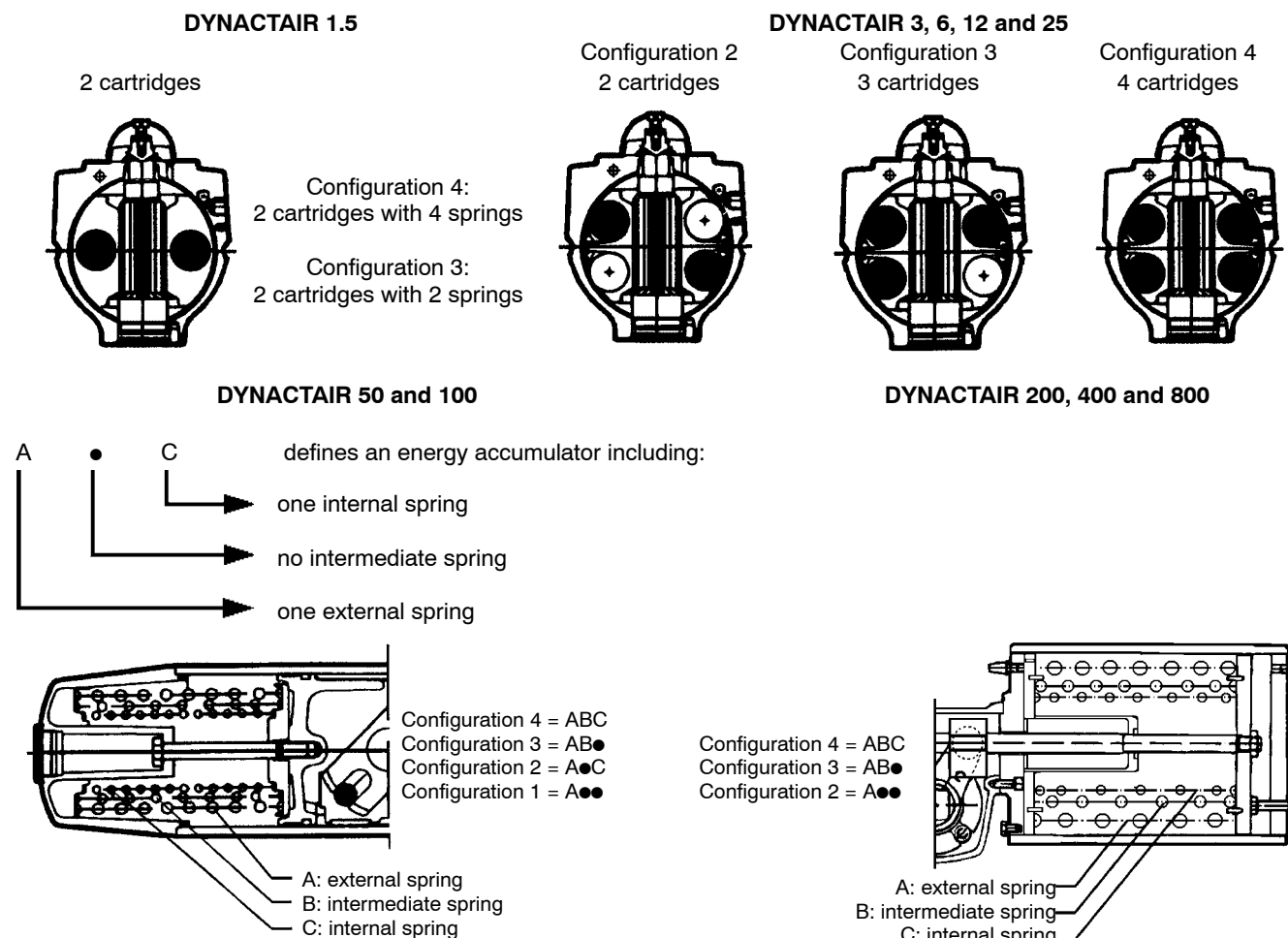
This energy accumulator consists in:

- for DYNACTAIR 1.5 to 25 actuators: 2, 3 or 4 precompressed spring cartridges fitted between the pistons, each cartridge including four helicoidal springs,
- for DYNACTAIR 50 to 800 actuators: a precompressed spring cartridge fitted at each housing end, each cartridge including one, two or three helicoidal springs depending on the requested output torque.

The table below shows the different output torques relating to the control fluid pressure and the quantity of spring cartridges (case of DYNACTAIR 1.5 to 25) or of the quantity of springs and their position (case of DYNACTAIR 50 to 800).

DYNACTAIR	Energy accumulator configuration (cartridge/spring)	Output torque restored by the energy accumulator (cartridge/spring)		Output torque during the setting of the energy accumulator relating to the control fluid pressure												
		Springs start	Springs end	3 bar		4 bar		5 bar		6 bar		7 bar		8 bar		
				Air start	Air end	Air start	Air end	Air start	Air end	Air start	Air end	Air start	Air end	Air start	Air end	
Rack and pinion kinematics (refer to page 6 for curves and operation)																
1.5	3 (2 cart./ 2 springs)	16	9	16	5	24	13	32	20							
	4 (2 cart./ 4 spring)	30	15					25	5	32	13					
3	2 (2 cartridges)	28	16	27	14	41	28	55	43							
	3 (3 cartridges)	42	24			33	14	47	29	61	43					
	4 (4 cartridges)	57	32					39	14	53	29	68	43	82	57	
6	2 (2 cartridges)	51	32	55	28	82	55	108	81							
	3 (3 cartridges)	77	48			58	29	85	56	111	82					
	4 (4 cartridges)	103	64					69	30	96	57	122	83	148	109	
12	2 (2 cartridges)	108	64	94	50	147	103	200	156							
	3 (3 cartridges)	161	96			115	50	168	103	220	155					
	4 (4 cartridges)	215	128					136	48	188	101	241	154	294	207	
25	2 (2 cartridges)	220	131	186	97	292	203	398	308							
	3 (3 cartridges)	330	196			226	94	332	199	437	305					
	4 (4 cartridges)	440	262					267	89	372	194	478	299	583	405	
Scotch-yoke kinematics (refer to page 7 for curves and operation)																
50	1 (1 spring A ●●)	360	229	401	270	611	481									
	2 (2 springs A ● C)	550	336	295	81	505	291	716	502							
	3 (2 springs A B ●)	622	404			437	218	647	429	857	639					
	4 (3 springs A B C)	810	520			317	60	528	278	738	488	949	698	1116	909	
100	1 (1 spring A ●●)	728	447	789	508	1202	921									
	2 (2 ressorts A ● C)	970	585	652	267	1065	680	1478	1093							
	3 (2 ressorts A B ●)	1350	800			843	293	1256	706	1669	1119					
	4 (3 ressorts A B C)	1600	1010			657	120	1070	533	1482	946	1895	1358	2300	1771	
Yoke AMRI patented kinematics (refer to pages 8 and 8 for curves and operation)																
Closing by lack of control fluid	200	2 (1 spring A ●●)	800	1000	1880	700										
		3 (2 springs A B ●)	1000	1700			2100	600								
		4 (3 springs A B C)	1000	2150			1700	300	2600	1000	2600	1000				
	400	2 (1 spring A ●●)	1000	2000	3700	1000										
		3 (2 springs A B ●)	1000	3400			4200	1000								
		4 (3 springs A B C)	1000	4300			3400	600	4400	1000	4400	1000				
	800	2 (1 spring A ●●)	2000	3000	7000	2000										
		3 (2 springs A B ●)	2000	5400	4400	700	7800	2000								
		4 (3 springs A B C)	2000	8000					8800	2000	8800	2000				
	Opening by lack of control fluid	200	2 (1 spring A ●●)	1500	500	1000	1300	1000	2100							
			3 (2 springs A B ●)	2500	1000			1000	1050	1000	2000	1000	2900			
		400	2 (1 spring A ●●)	3000	1000	1000	2600	1000	4200							
3 (2 springs A B ●)			4400	1000			1000	2100	1000	4000	1000	4400				
800		2 (1 spring A ●●)	4600	1800	2000	5420	2000	8800								
		3 (2 springs A B ●)	8800	2000	2000	1200	2000	4500	2000	7900	2000	8800				

## Configuration of the energy accumulator



## Actuator selection

Relating to the ¼ turn valve to be operated and its operating torque, the available control fluid pressure and the requested safety function, it is necessary to take into consideration the following criteria for the actuator selection (type and configuration):

### Butterfly valves

Closing function = springs end and air start,  
Opening function = springs start and air end.

### Ball valves

Whatever the safety function may be, the four criteria must be taken into consideration:

Springs end and air start,  
Springs star and air end.

Choose the values for springs and air the nearest possible one another and immediately higher than the operating torque of the valve to be actuated (consult the manufacturer instructions).

This selection is already defined in the technical leaflets for KSB-AMRI valves: definition of the DYNACTAIR configuration relating to its safety function and control fluid pressure.

DYNACTAIR		Closing by lack of control fluid				Opening by lack of control fluid			
		3 bar	4 bar	5 bar	6 bar	3 bar	4 bar	5 bar	6 bar
1.5	Configuration	3	3	4	4		3	3	3
3 – 6 – 12 – 25		2	3	4	4	2	2	3	3
50 – 100		2	3	4	4	1	1	2	3
200 – 400 – 800		2	3	4	4	2	2	3	3

## Operation

### DYNACTAIR 1.5 to 25: rack and pinion kinematics

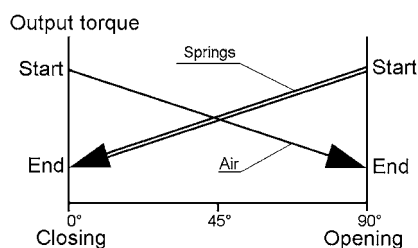
The rack and pinion kinematics develop a linear output torque.

The movement of the rack/pistons secured by the control fluid pressure causes a  $\frac{1}{4}$  turn rotation of the pinion integral with the valve shaft: the pressure ensures at once the valve operation and the compression of the spring cartridges.

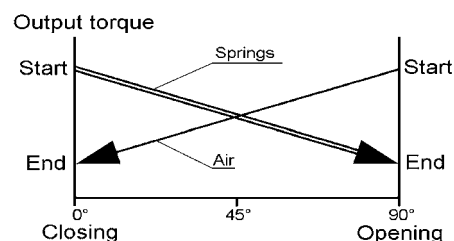
The spring cartridges reset the valve in safety position when the pressure is cut-off.

#### Curve of the rack and pinion kinematics

**Closing by lack of control fluid**



**Opening by lack of control fluid**



#### Closure function by lack of control fluid - Adjustable mechanical travel stop on closing position

Adjustment range ( $\pm 2,5^\circ$ ) for the end-stop

The DYNACTAIR with closure function by lack of control fluid can be equipped with only an adjustable end-stop on closing position

Opening operation under fluid pressure

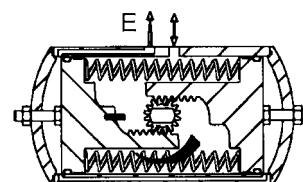
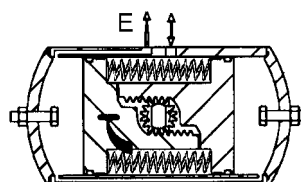
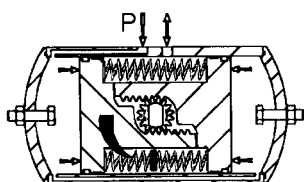
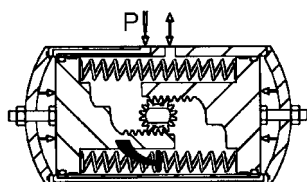
Actuator/Valve closed

Actuator/Valve open

Closing operation under springs action

Actuator/Valve open

Actuator/Valve closed



#### Opening function by lack of control fluid - Adjustable mechanical travel stop on opening position

Adjustment range ( $\pm 2,5^\circ$ ) for the end-stop

The DYNACTAIR with opening function by lack of control fluid can be equipped with only an adjustable end-stop on opening position

Closing operation under fluid pressure

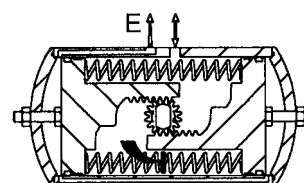
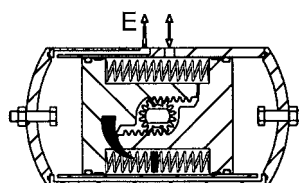
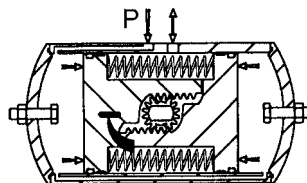
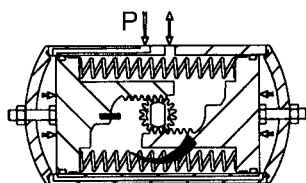
Actuator/Valve closed

Actionneur/Robinet fermé

Opening operation under springs action

Actuator/Valve closed

Actuator/Valve open



During the operation under control fluid pressure, the holding in position is only achieved by the pressure in the chambers.

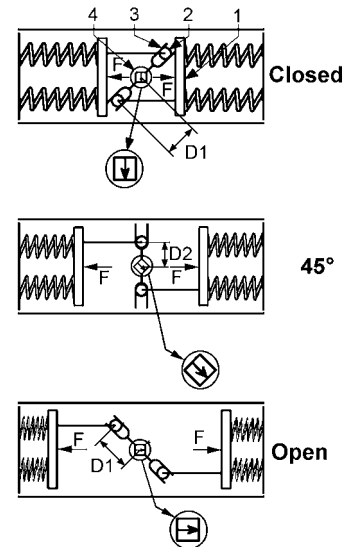
## DYNACTAIR 50 and 100: scotch-yoke kinematics

The scotch-yoke kinematics develop a variable output torque well suited to the operation of  $\frac{1}{4}$  turn valves.

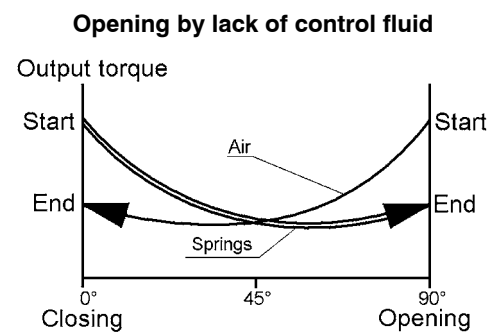
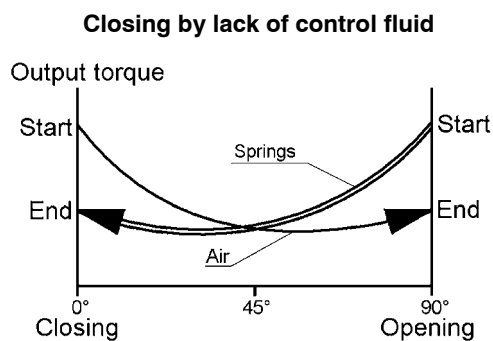
The movement transmission is achieved by means of the piston system ①, rollers ②, scotch-yoke ③ and shaft ④.  
The movement of the pistons ① secured by the pressure causes the sliding of the rollers ② in the grooves of the yoke ③.  
The yoke ③ allows the rotation of the shaft ④ integral with the valve shaft.

The control fluid pressure ensures at once the valve operation and the compression of the springs.

The springs reset the valve in safety position when the pressure is cut-off.



Curve of the scotch-yoke kinematics



### Closure function by lack of control fluid - Adjustable mechanical travel stop on closing position

Adjustment range ( $\pm 2,5^\circ$ ) for the end-stop

The DYNACTAIR with closure function by lack of control fluid can be equipped with only an adjustable end-stop on closing position

Opening operation under fluid pressure

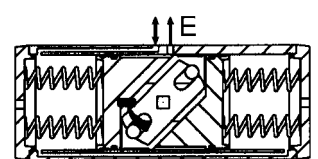
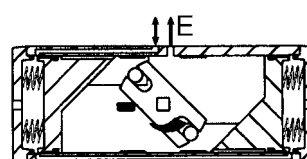
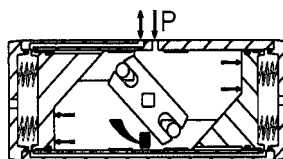
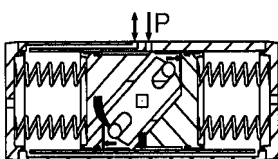
Actuator/Valve closed

Actuator/Valve open

Closing operation under springs action

Actuator/Valve open

Actuator/Valve closed



### Opening function by lack of control fluid - Adjustable mechanical travel stop on opening position

Adjustment range ( $\pm 2,5^\circ$ ) for the end-stop

The DYNACTAIR with opening function by lack of control fluid can be equipped with only an adjustable end-stop on opening position

Closing operation under fluid pressure

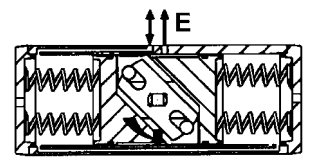
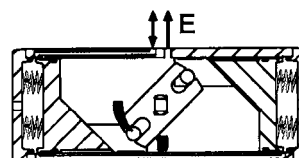
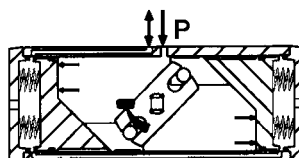
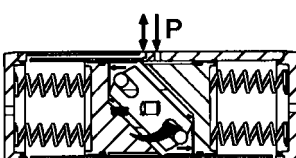
Actuator/Valve open

Actuator/Valve closed

Opening operation under springs action

Actuator/Valve closed

Actuator/Valve open



During the operation under control fluid pressure, the holding in position is only achieved by the pressure in the chambers.

## DYNACTAIR 200 to 800: yoke AMRI patented kinematics

The yoke AMRI patented kinematics develop a variable output torque very well suited to the operation of  $\frac{1}{4}$  turn valves with hydrodynamic torque.

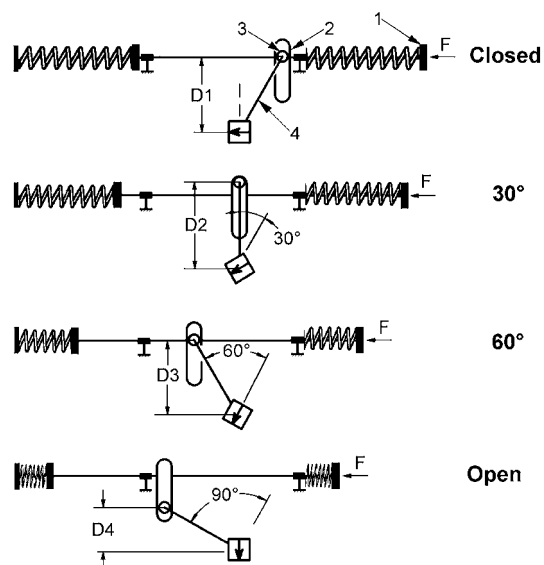
The movement transmission is achieved by means of the piston system ①, the slide operating nut ②, the rolling pad ③ and the yoke ④.

The movement of the piston ① secured by pressure in the actuator cylinder causes the linear travel of the operating nut ②.

This movement drives the sliding of the pads ③ in the 2 slides of the operating nut, and allows the rotation of the yoke ④ integral with the valve shaft.

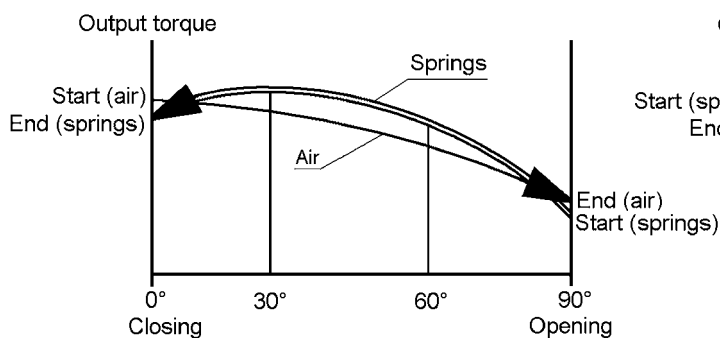
The control fluid pressure ensures at once the valve operation and the compression of the springs.

The springs reset the valve in safety position when the pressure is cut-off

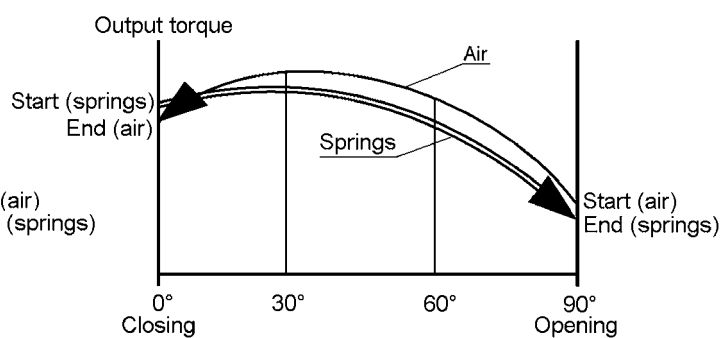


### Curve of the yoke AMRI patented kinematics

#### Closing by lack of control fluid



#### Opening by lack of control fluid



During the operation under control fluid pressure, the holding in position is only achieved by the pressure in the chambers.

## DYNACTAIR 200

### Closure function by lack of control fluid

Opening operation under fluid pressure

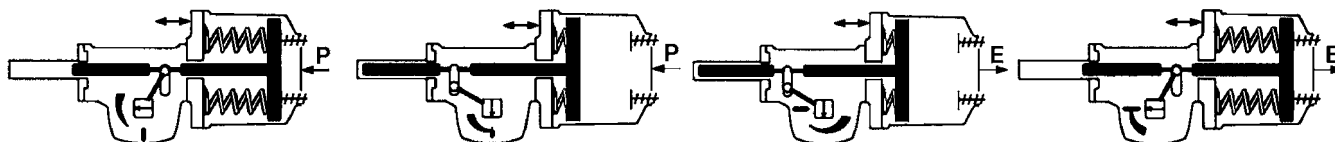
Actuator/Valve closed

Actuator/Valve open

Closing operation under springs action

Actuator/Valve open

Actuator/Valve closed



### Opening function by lack of control fluid

Closing operation under fluid pressure

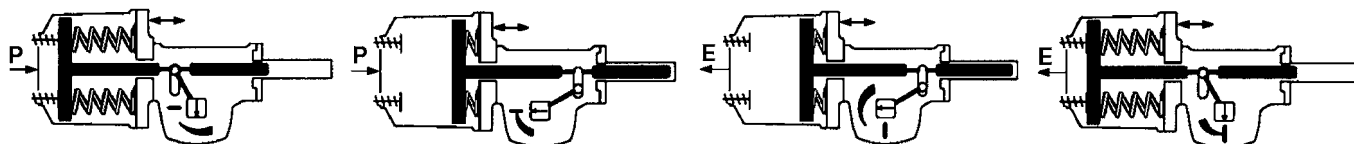
Actuator/Valve open

Actuator/Valve closed

Opening operation under springs action

Actuator/Valve closed

Actuator/Valve open



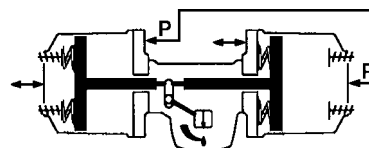
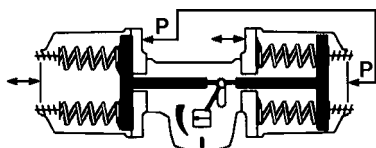
## DYNACTAIR 400 and 800

### Closure function by lack of control fluid

Opening operation under fluid pressure

Actuator/Valve closed

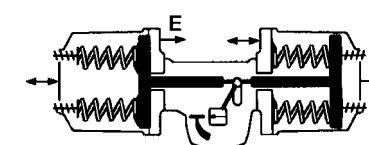
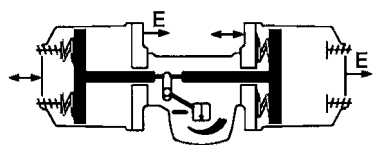
Actuator/Valve open



Closing operation under springs action

Actuator/Valve open

Actuator/Valve closed

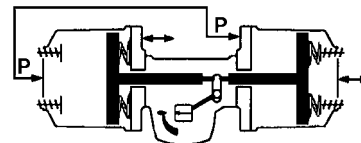
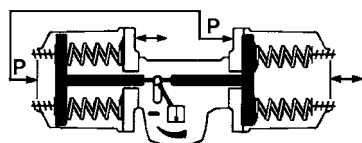


### Opening function by lack of control fluid

Closing operation under fluid pressure

Actuator/Valve open

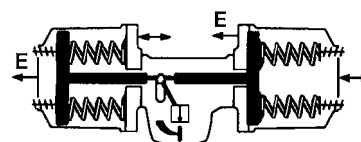
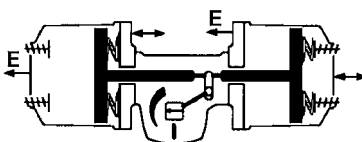
Actuator/Valve closed



Opening operation under springs action

Actuator/Valve closed

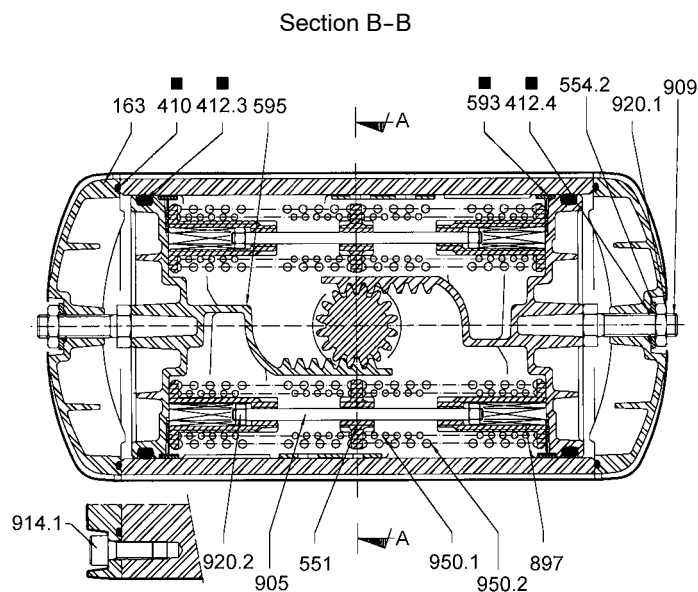
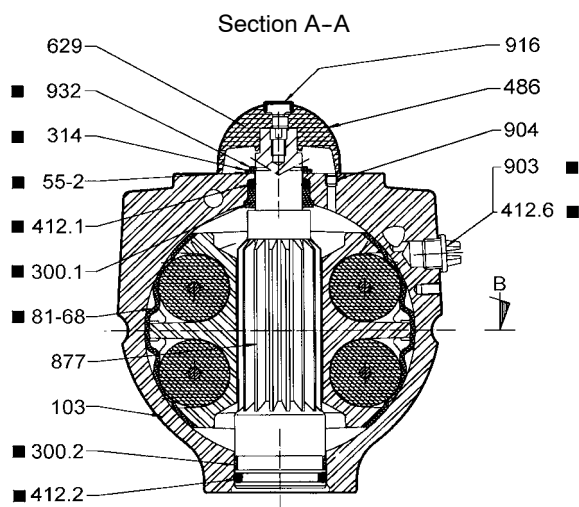
Actuator/Valve open



## DYNACTAIR 1,5 to 25

### Construction

Direct pneumatic connection 1/4" Gas.



Item	Designation	Materials
103	Housing	Light alloy with 50 µm hard anodization
163	Cylinder head	Light alloy with 30 µm cataphoresis coating
300.1 ■	Upper bearing	Acetal
300.2 ■	Lower bearing	Acetal
314 ■	Thrust washer	Stainless steel type 316
410 ■	Cylinder head gasket	Nitrile
412.1 ■	O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.2 ■	O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.3 ■	Piston O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.4 ■	O-Ring	Nitrile
412.6 ■	O-Ring	Nitrile
486 ■	Ball	Stainless steel
554.2	Washer	Stainless steel A4-70
55-2 ■	Friction washer	Acetal
593 ■	Piston bearing	Acetal
595	Piston	Light alloy
629	Pointer	Polyamide 6-6 + treatment against U.V. rays
81-68 ■	Piston guide	Acetal
877	Pinion	Zinc coated steel
903 ■	Plug	Polyamide 6-6
904	Socket screw	Stainless steel with cladding
909	Adjusting screw	Stainless steel A4-70
914.1	Hexagon socket head screw	Stainless steel A4-70
916	Plug	Polyethylene
920.1	Hexagonal nut	Stainless steel A4-70
932 ■	Spring retaining ring	Stainless steel
Precompressed spring cartridge including:		
551	Space washer	Acetal + fibreglass
897	Spring guide	Acetal + fibreglass
905	Tie-rod	Zinc coated steel
920.2	Hexagonal nut	Zinc coated steel
950.1	Internal spring	Steel with cataphoresis coating
950.2	External spring	Steel with cataphoresis coating

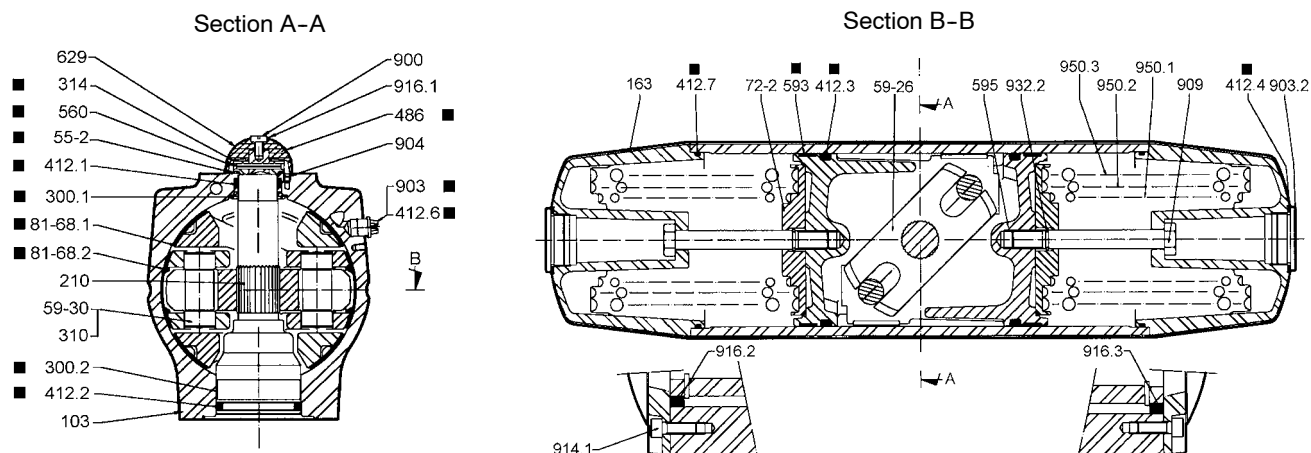
■ Parts included in the spare parts kit

\* Alternative: Special Nitrile (-40° to +80° C) or Viton (-20° to +120° C)

## DYNACTAIR 50 and 100

### Construction

Direct pneumatic connection 1/4" Gas



Item	Designation	Materials
103	Housing	Light alloy with 50 µm hard anodization
210	Shaft	Zinc coated treated steel
300.1 ■	Upper bearing	Acetal
300.2 ■	Lower bearing	Stainless steel + PTFE
310	Self lubricating bearing	PTFE filled
314 ■	Thrust washer	Zinc coated treated steel
412.1 ■	O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.2 ■	O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.3 ■	Piston O-Ring	Nitrile (Working temperature range: from -20° up to +80° C)*
412.6 ■	O-Ring	Nitrile
486 ■	Ball	Stainless steel
55-2 ■	Friction washer	Acetal
560 ■	Pin	Stainless steel
593 ■	Piston bearing	Acetal
595	Piston	Ductile iron JS 1030
59-26	Scotch-yoke	Treated steel
59-30	Roller	Treated steel
629	Pointer	Polyamide 6-6 + treatment against U.V. rays
81-68.1 ■	Piston guide	Acetal
81-68.2 ■	Piston guide	Acetal
900	Cheese head screw	Stainless steel A4-70
903 ■	Plug	Polyamide 6-6
904	Socket screw	Stainless steel
914.1	Hexagon socket screw	Stainless steel A4-70
916.1	Plug	Polyethylene
916.2	Cylindrical plug	Nitrile
916.3	Triangular plug	Nitrile
Pre-mounted spring pack including:		
163	Cylinder head	Light alloy with 30 µm cathaphoresis coating
412.4 ■	O-Ring	Nitrile
412.7 ■	O-Ring	Nitrile
72-2	Centring plate	Light alloy
903.2	Threaded plug	Stainless steel
909	Adjusting screw	Zinc coated steel
932.2	Spring retaining ring	Stainless steel type 316
950.1	Internal spring	Steel with cathaphoresis coating
950.2	Intermediate spring	Steel with cathaphoresis coating
950.3	External spring	Steel with cathaphoresis coating

■ Parts included in the spare parts list.

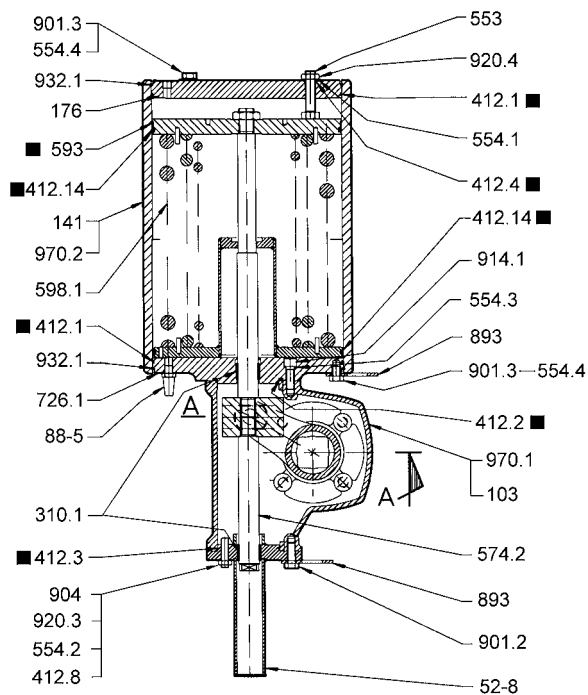
\* Alternative: Special Nitrile (-40° to +80° C) or Viton (-20° to +120° C)

## DYNACTAIR 200 to 800

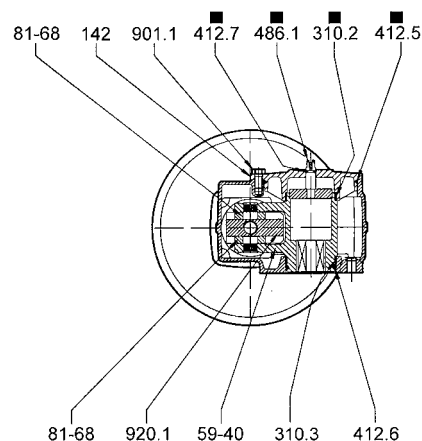
### Construction

Direct pneumatic connection: 1/2" Gas for DYNACTAIR 200 and 400  
3/4" Gas for DYNACTAIR 800

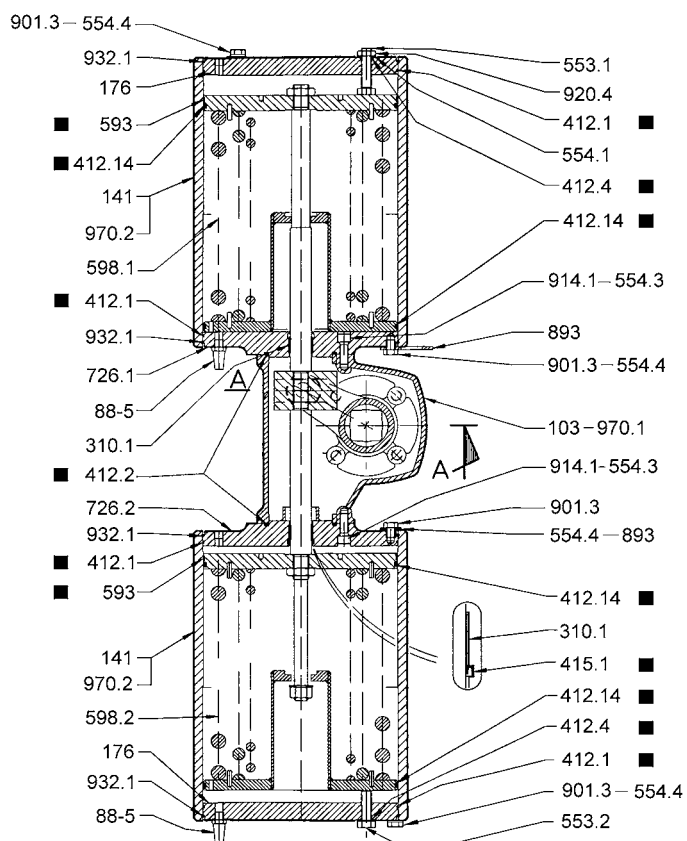
#### DYNACTAIR 200 - Closure function by lack of control fluid



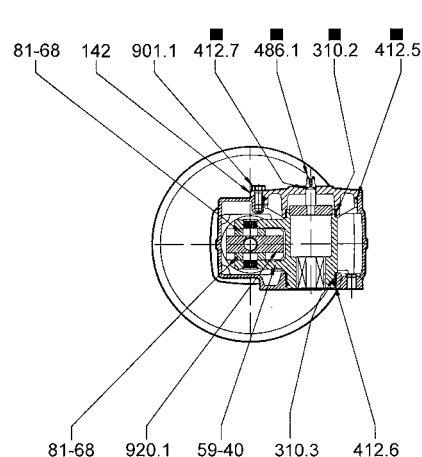
#### Section A-A



#### DYNACTAIR 400 and 800 - Closure function by lack of control fluid



#### Section A-A



■ Parts included in the spare parts kit

## DYNACTAIR 200 to 800

### Standard construction

Direct pneumatic connection: 1/2" Gas for DYNACTAIR 200 and 400  
3/4" Gas for DYNACTAIR 800

Item	Designation	Materials
103	Housing	Ductile iron JS 1030
141	Cylinder	Steel
142	Cover	Ductile iron JS 1030
176	Cylinder head	Steel with cataphoresis coating
310.1	Self-lubricating bearing	PTFE filled on steel casing
310.2 ■	Self-lubricating bearing	PTFE filled on steel casing
310.3	Self-lubricating bearing	PTFE filled on steel casing
412.1 ■	O-Ring	Nitrile
412.2 ■	O-Ring	Nitrile
412.3 ■	O-Ring	Nitrile
412.4 ■	O-Ring	Nitrile
412.5 ■	O-Ring	Nitrile
412.6	O-Ring	Nitrile
412.7 ■	O-Ring	Nitrile
412.8	O-Ring	Nitrile
412.14 ■	O-Ring	Nitrile
415.1 ■	Lip seal ring	Nitrile
486.1 ■	Ball	Stainless steel
52-8	Protection sleeve	Treated steel
553.1	Thrust insert	Stainless steel A4-70
553.2	Thrust insert	Stainless steel A4-70
554.1	Washer	Stainless steel A4-70
554.2	Washer	Stainless steel A4-70
554.3	Washer	Nylon
554.4	Washer	Stainless steel
574.2	Rod	Steel
593 ■	Guiding strip	PTFE + bronze
598.1	Sub assembly springs cartridge	Treated steel + springs in steel
598.2	Sub assembly springs cartridge	Treated steel + springs in steel
59-40	Chuck	Ductile iron JS 1030*+ signalisation shaft in stainless steel
726.1	Guiding flange	Steel with cataphoresis coating
726.2	Centring washer	Steel with cataphoresis coating
81-68	Pressure pad	Nitrured steel
88-5	Silencer	-----
893	Support plate	Steel with cataphoresis coating
901.1	Hexagon head screw	Stainless steel A4-70
901.2	Hexagon head screw	Stainless steel A4-70
901.3	Hexagon head screw	Stainless steel A4-70
904	Travel stop	Stainless steel A4-70
914.1	Hexagon socket head screw	Stainless steel A4-70
920.1	Operating nut	Ductile iron JS 1060
920.2	Hexagon nut	Stainless steel A4-70
920.4	Hexagon nut	Stainless steel A4-70
932.1	Spring retaining ring	Treated steel
970.1	Identity plate	Stainless steel
970.2	Safety instructions plate	Stainless steel

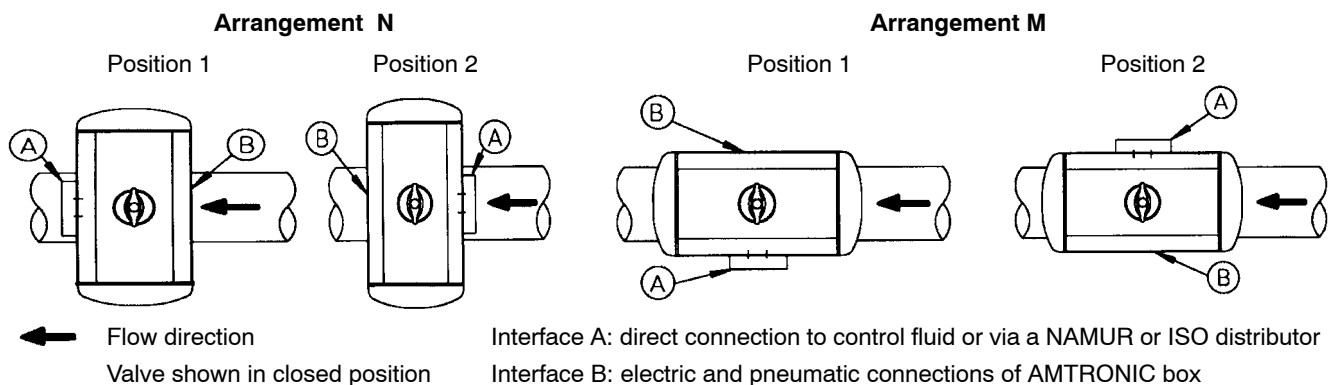
■ Parts included in the spare parts kit

## Mounting on valve

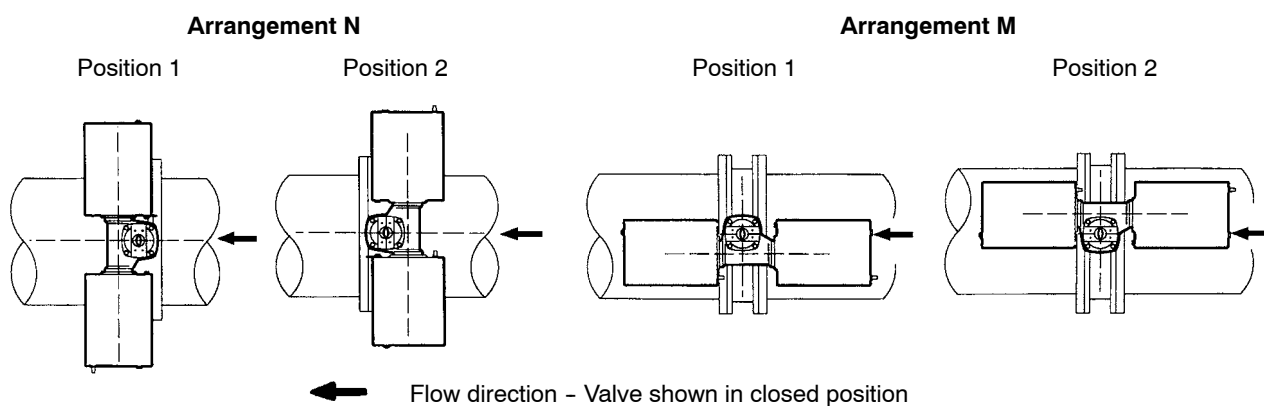
The actuator can be positioned in four position, at intervals of 90°.

Unless otherwise stated, the actuator is mounted according to the arrangement N position 1.

### DYNACTAIR 1.5 to 100



### DYNACTAIR 200 to 800

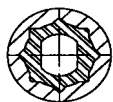


These actuators are equipped with interchangeable inserts machined to the size and the shape of various valve shafts to be operated.

### DYNACTAIR 1.5 to 25

Pinion with star driving allowing mounting at intervals of 45°

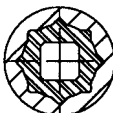
Flat end



Key end



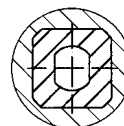
Square end



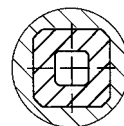
### DYNACTAIR 50 to 800

Shaft or yoke with driving square and insert

Flat end



Square end

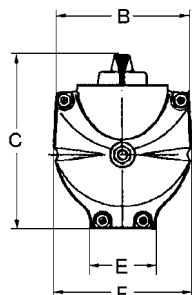
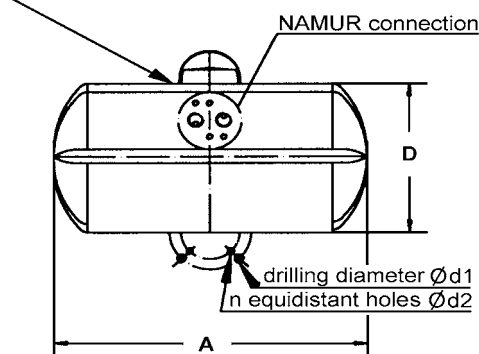


The actuators can be delivered with or without the coupling parts.

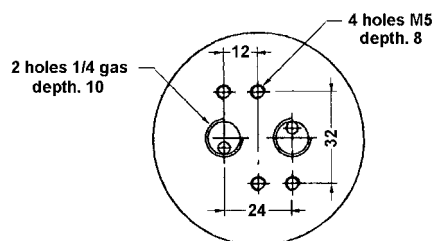
# Overall dimensions (mm) and weights (kg)

## DYNACTAIR 1.5 to 25

Interface in accordance with NAMUR VDI/VDE 3845

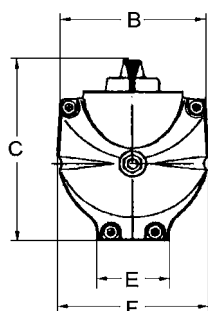
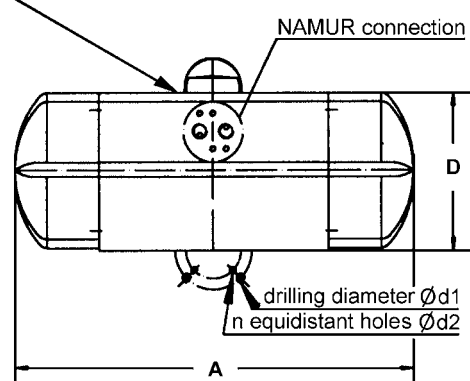


NAMUR connection  
(detail)

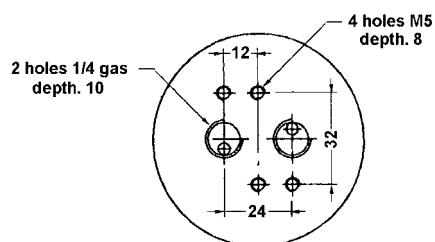


## DYNACTAIR 50 and 100

Interface in accordance with NAMUR VDI/VDE 3845



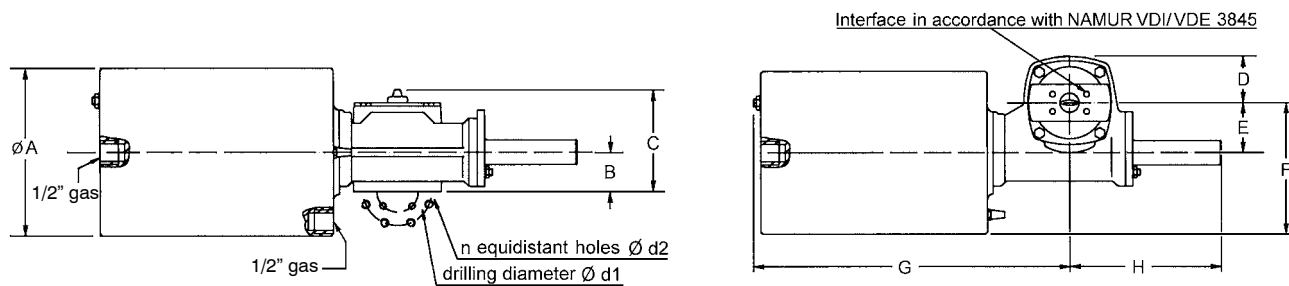
NAMUR connection  
(detail)



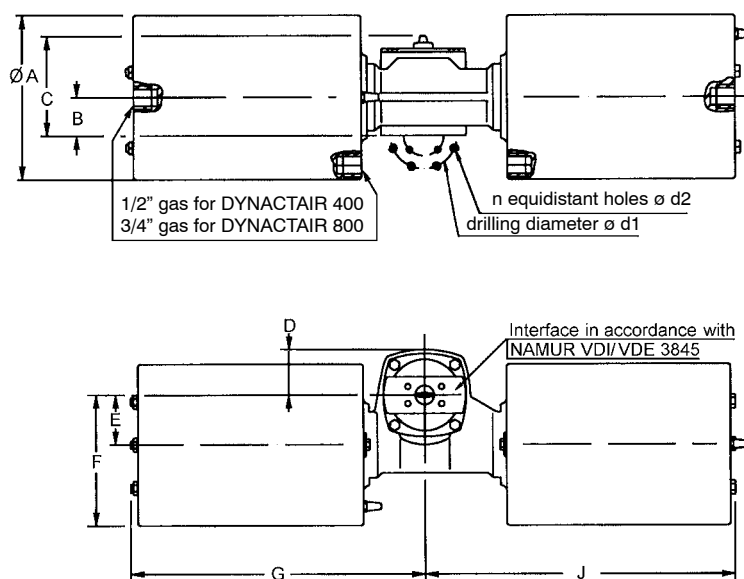
DYNACTAIR Type							ISO 5211 mounting plate				Weight kg
	A	B	C	D	E	F	ref	$\varnothing d1$	$\varnothing d2$	n	
1.5	194	100	119	98	55	100	F04 (45°) F05	42 50	M5 M6	4 4	3,2
3	218	114	137	116	65	118	F05 F07	50 70	M6 M8	4 4	4,5
6	272	132	163	142	65	138	F05 F07	50 70	M6 M8	4 4	7,3
12	344	156	197	176	90	166	F07 F10	70 102	M8 M10	4 4	13,6
25	424	174	238	217	125	200	F10 F12	102 125	M10 M12	4 4	24
50	705	157	216	195	122	170	F10 F12	102 125	M10 M12	4 4	46
100	812	174	258	237	144	210	F14	140	M16	4	75

## Overall dimensions (mm) and weights (kg)

### DYNACTAIR 200 (Standard version - Direct connection)



### DYNACTAIR 400 and 800 (Standard version - Direct connection)



DYNACTAIR Type										ISO 5211 mounting plate				Weight
	A	B	C	D	E	F	G	H	J	ref	$\varnothing d1$	$\varnothing d2$	n	kg
200	406	95	246	115	125	328	740	474		F16	165	M20	4	270
400	406	95	246	115	125	328	740		790	F16	165	M20	4	410
800	508	109	280	155	140	394	905		950	F16	165	M20	4	880
										F25	254	M16	8	

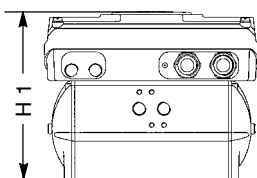
## Indication function

### Limit switch indication by AMTROBOX (IP67)

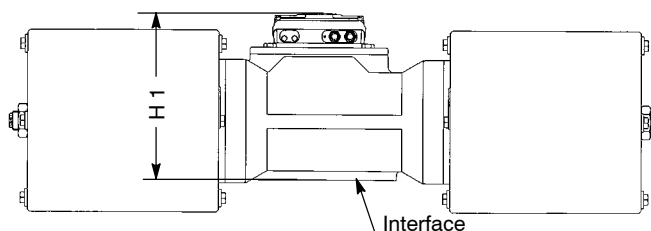
The function provided by AMTROBOX is as follow:

- Position detection:
- On/off position detection by means of microswitches or inductive proximity detectors (1/O, 1/C, 1 on intermediate position on request).

**DYNACTAIR 1.5 100**



**DYNACTAIR 200 to 800**



Consult type series booklet AMTROBOX ref. 8525.1

## Control and supervision functions

### Piloting-servo control by AMTRONIC / SMARTRONIC box

The functions provided are as follows :

#### AMTRONIC :

- On/off pneumatic distribution: 4/2 or 4/3 configuration, spring return or double acting, A.C. or D.C. supply.
- Operating time adjustment.

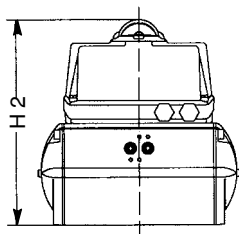
#### SMARTRONIC :

- Proportional distribution for autocalibration setting, 4-20 mA pilot.
- Operating time adjustment

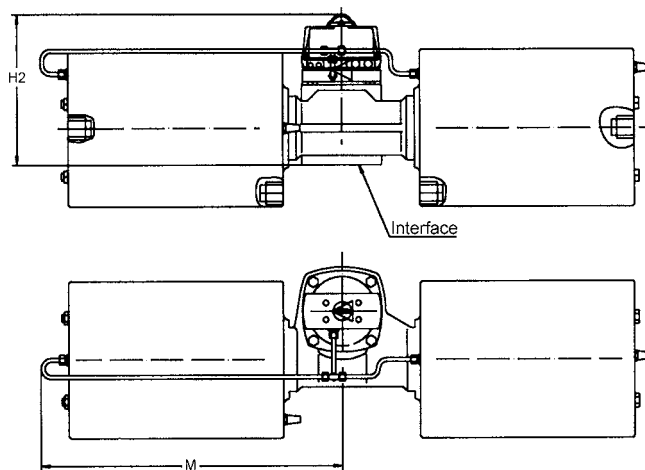
#### Options :

- On/off position detection (2 microswitches or inductive proximity detectors),
- Proportional position detection (4-20 mA).
- Field bus: AS-i, Profibus DP, Device Net.

**DYNACTAIR 1.5 to 100**



**DYNACTAIR 200 to 800**



Consult type series booklet AMTRONIC ref. 8512.1 and SMARTRONIC MA 8527.1

DYNACTAIR Type	H1	H2	M	Weight kg
1.5	168	235		4,5
3	185	252		5,5
6	211	278		8
12	245	312		13
25	286	353		20
50	264	331		32
100	306	373		50
200	293	390	790	280
400	293	390	790	425
800	328	425	955	900

## Options

### Visual position indicator type "BEACON"

**DYNACTAIR 1.5 to 800**

Instead of the standard pointer.



### Direct NPT air connection

**DYNACTAIR 1.5 to 200**

1/4" NPT connection plate made of anodised Aluminium, fitted onto the Namur interface of the standard actuator.



### **DYNACTAIR 200 to 800**

NPT air connection directly threaded on the cylinder:

- 1/2" NPT on DYNACTAIR 200 and 400,
- 3/4" NPT on DYNACTAIR 800

DYNACTAIR actuators can be equipped with different accessories instead of AMTROBOX, AMTRONIC and SMARTRONIC instrumentation box.

### Limit switch box **DYNACTAIR 1.5 to 800**



The switch box is fitted onto the top of the actuator housing by means of a yoke with interface in accordance with VDI/VDE 3845 NAMUR specification. Please consult us.

### Positioner **DYNACTAIR 1.5 to 800**



A positioner with a 3-15 PSI pneumatic piloting signal or a 4-20 mA electric signal (standard or with intrinsically safety) can be mounted onto the top of actuator housing by means of a yoke with VDI/VDE 3845 interface. Please consult us.

### NAMUR distributor **DYNACTAIR 1.5 to 100**



A distributor with electric or pneumatic piloting with NAMUR interface can be fitted directly onto the side of the actuator housing. Please consult us.

### ISO size 1 distributor **DYNACTAIR 1.5 to 800** ISO size 2 distributor **DYNACTAIR 200 to 800**

A distributor with an ISO 5599 size 1 or size 2 interface can also be fitted to the actuator by means of a distributor plate.

## Options

### Manual emergency control

#### Protection:

Hose and fine dust proof (protection degree equivalent to IP 65).

#### External coating:

Polyurethane paint thickness 80 µm, colour dark grey ref. RAL 7016.

#### Working temperature:

From -20° C up to +80° C.

### DYNACTAIR 1.5 to 100: declutchable manual override

A manual override using a declutchable gear box may be fitted between the valve mounting plate and the actuator.

This manual control will override with the pneumatic actuator and can be set in clutched or declutched positions.

#### Construction:

- housing, cover and extension in JL 1040 cast iron,
- handwheel in welded steel,
- screw in treated steel,
- worm in JS 1030 ductile iron,
- drive shaft, clutch lever, locking pointer, adjustable mechanical travel stops ( $\pm 5^\circ$ ) and external bolting in 13% chromium stainless steel.

For more information, please refer to Manual Override technical leaflet ref 5350.1.

#### Instructions for override operation

*The manual override should only be used under the following recommendations:*

- *absence of air pressure in the actuator,*
- *the actuator chambers must be to the open air.*

**Check the actuator is not under air pressure before use the manual override.**

#### Override clutch

- 1 - Unlock the unit by pulling the locking pointer ,
- 2 - Keep the pointer in pulled position and turn the clutch lever to the clutched position,
- 3 - Release the pointer, it must bolt itself in low position.

#### Manual emergency control use

- 4 - Operate the valve by turning the handwheel.

Turns number for a complete operation

DYNACTAIR 1.5 , 3 , 6 and 12: 10 turns

DYNACTAIR 25 and 50 : 12 turns

DYNACTAIR 100 : 13 turns

- 5 - Bring the emergency control back to its initial position by turning the handwheel in the opposite direction.

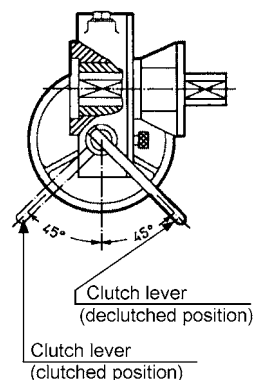
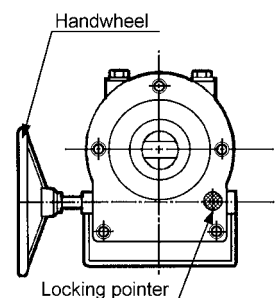
#### Override declutch

- 6 - Repeat the clutch operations in the opposite way.

**Caution : the clutch lever operation is not allowed when the springs are compressed, that causes damages to the override. The declutch operation can be done only with the actuator in safety position, i.e. springs decompressed.**

**The operation no. 5 must be imperatively done before system declutch.**

**The actuator can be now pressurized.**



## Options

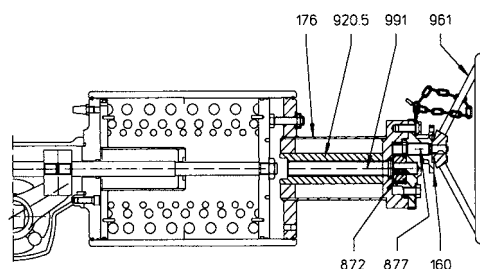
### Manual emergency control

#### DYNACTAIR 200 to 800: emergency control to be pushed

A manual emergency control to be pushed can be fitted on the cylinder head.  
Operation by handwheel dia.500 mm with reduction gear unit.  
This control can be locked in any position by means of a chain.

##### Construction

- sub-assembly sleeve 176 in treated steel with cataphoresis coating,
- nut 920.5 in bronze,
- operating screw 991, toothed wheel 872 and pinion 877 in treated steel,
- cover 160 in JS 1030 ductile iron,
- handwheel 961 in welded steel.



##### Instructions for emergency control operation

**The manual emergency control should only be used under the following recommendations:**

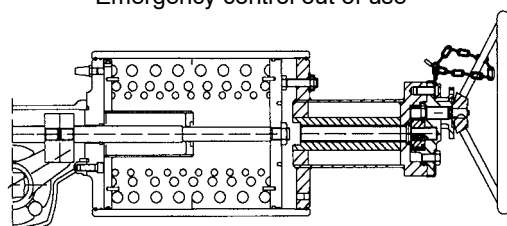
- **absence of air pressure in the actuator,**
- **the actuator chambers must be to the open air.**

**Check the actuator is not under air pressure before emergency control use.**

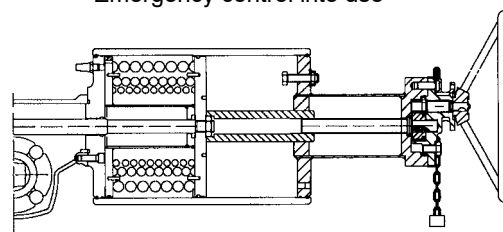
##### Bringing into service

- Unlock the handwheel,
- Turn the handwheel:
  - clockwise for valve closure,
  - anticlockwise for valve opening.
- Handwheel turns number for a complete operation:
  - DYNACTAIR 200 and 400: 123 turns,
  - DYNACTAIR 800: 231 turns.

Emergency control out of use



Emergency control into use



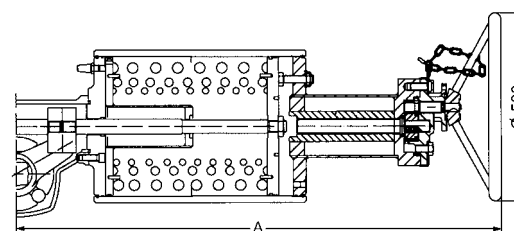
**Before normal use of the actuator, imperatively bring out of use the emergency control.**

- Bring back the control to its initial position,
- Lock the handwheel.

**Now, the pressurization of the actuator is possible.**

##### Overall Dimensions

DYNACTAIR	A (mm)
200	1245
400	
800	1456



##### Stroke limiter

#### DYNACTAIR 1.5 to 100

Stroke limiter adjustable between 0 and 90° in only one direction.  
The device is fitted instead of the standard adjustment end-stop.  
Available on open **or** close direction.  
Consult us.

#### DYNACTAIR 1.5 to 6

Stroke limiter adjustable in both directions (open and close).  
The device is fitted between the valve top flange and the actuator.  
Consult us.