

Butterfly Valve

**ISORIA 20/25**

**Actuator Selection**



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Actuator Selection ISORIA 20/25

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## Information

### Related documents

For more information refer to the documents listed below and to the KSB web site.

**Table 1:** Information/documents

Document	Reference number
Operating manual	8449.8
ISORIA 20/25 type series booklet	8447.5

### Flow velocities

The following is a typical selection of actuators for butterfly valves handling lubricating fluids at the maximum flow velocities shown. Higher flow velocities and further actuator/valve combinations are possible, depending on the operating conditions and hydraulic characteristics. Contact KSB.

**Table 2:** Overview table of maximum flow velocities for ISORIA 20/25

DN	Fluids handled		Gases
	Lubricating fluids	Non-lubricating fluids	
	[m/s]	[m/s]	[m/s]
32	4	4	50
40	4	4	50
50	4	4	50
65	4	4	50
80	4	4	50
100	4	4	50
125	4	4	50
150	4	4	50
200	4	4	50
250	4	4	50
300	4	4	50
350	4	4	50
400	3	3	50
450	3	3	50
500	3	3	50
550	3	3	50
600	3	3	50
700	2	2	50
800	2	2	50
900	2	2	50
1000	2	2	50



**Actuators**
**Levers**
**S/SR/SP (ISORIA 20)**

**Fig. 1:** Unit comprising ISORIA 20/25 + S/SR lever

**Table 3:** Liners for lubricating fluids and non-lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids XA/XC/XV/K liners		Non-lubricating fluids All liners	
	s	h3		S/SR	SP	S/SR	SP
	32	M11		24	20	180/260	260
40	260		260				
50			330			330	330
65						330	330
80	330		330				
100	M14	24	330	330	330	330	
125		30			-	-	
150		35			-	-	
200	M19	35	-	-	-	-	
250			-	-	-		
300			-	-	-		

**S/SR/SP (ISORIA 25)**
**Table 4:** Liners for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids XA/XC/XV/K liners		
	s	h3		S/SR	SP	
	32	M11		24	25	260
40	330		330			
50			-			-
65						-
80	-					
100	M14	24	-	-		
125		30				
150		35				
200	M19	35	-	-		
250			-	-		
300			-	-		

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## CR/CM (ISORIA 20)



Fig. 2: Unit comprising ISORIA 20/25 + CR/CM lever

Table 5: Liners for lubricating fluids and non-lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids	Non-lubricating fluids	
	s	h3		XA/XC/XV/K liners	All liners	
				CR/CM	CR/CM	
32	M11	24	20	165/230	165/230	
40						
50						
65						
80						
100	M14	24	230/300	300		
125		30			300/510	300/510
150						
200	M19	35	-	-	-	
250						
300	M22	40	-	-	-	

## CR/CM (ISORIA 25)

Table 6: Liners for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids		
	s	h3		XA/XC/XV/K liners		
				CR/CM		
32	M11	24	25	165/230		
40						
50						
65						
80						
100	M14	24	300	300/510		
125		30			510	510
150						
200	M19	35	-	-		
250						
300	M22	40	-	-		

Manual Gearboxes

# MR/AB (ISORIA 20)



Fig. 3: Unit comprising ISORIA 20/25 + MR/AB manual gearbox

Table 7: Liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners			
	s	h3		KSB	ROTORK	KSB	ROTORK		
				Type MR	Type AB	Type MR	Type AB		
32	M11	24	6/10	MR25	-	MR25	-		
40					-		-		
50					-		-		
65					-		-		
80					-		-		
100	M14	24			-		-		
125		30			-		-		
150		-			-				
200	M19	35			-		-	MR50	-
250					-		-		
300	M22	40			MR50		-	MR100	-
350	C30	55			MR100		-	MR200	-
400					-		-		
450					-		-		
500	C40	65			MR200		-	MR400	-
550	C50		-	-					
600			-	-	AB2000				

**Table 8:** Liners for lubricating fluids and non-lubricating fluids (16 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners	
				KSB	ROTORK	KSB	ROTORK
	s	h3		Type MR	Type AB	Type MR	Type AB
32	M11	24	16	MR25	-	MR25	-
40					-		-
50					-		-
65					-		-
80					-		-
100	M14	24		-	-		
125		30		-	-		
150		-		-			
200	M19	35		-	-	MR50	-
250				MR50	-		-
300	M22	40		MR100	-	MR100	-
350	C30	55		-	-	MR200	-
400	C36			-	-		
450				MR200	-		-
500	C40	65		-	-	MR400	AB2000
550	C50			-	-		
600			MR400	AB2000			

**Table 9:** Liners for lubricating fluids and non-lubricating fluids (20 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners	
				KSB	ROTORK	KSB	ROTORK
	s	h3		Type MR	Type AB	Type MR	Type AB
32	M11	24	20	MR25	-	MR25	-
40					-		-
50					-		-
65					-		-
80					-		-
100	M14	24		-	-		
125		30		-	-		
150		-		-			
200	M19	35		-	-	MR50	-
250				MR50	-		MR100
300	M22	40		MR100	-	-	-
350	C30	55		-	-	MR200	-
400	C36			MR200	-		-
450				-	-		MR400
500	C40	65		-	-	MR400	AB2000
550	C50			MR400	AB2000		
600			-	-			

## MR/AB (ISORIA 25)

Table 10: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner		
	s	h3		KSB	ROTORK	
				Type MR	Type AB	
32	M11	24	25	MR25	-	
40					-	
50					-	
65					-	
80					-	
100	M14	24		-		
125		30		-		
150		-				
200	M19	35		MR50	-	
250				-		
300	M22	40		MR100	-	
350	C30	55		-		
400				C36	MR200	-
450					-	
500	C40	65		MR400	AB2000	
550	C50		-			
600			-			
700	C70	73	MR1200	AB3000/PR6		
800			-			
900			C80	A200/PR10		
1000	C90	-	MR1600	-		

Double-acting Pneumatic Actuator

# ACTAIR NG (ISORIA 20)



Fig. 4: Unit comprising ISORIA 20/25 + ACTAIR NG actuator

Table 11: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners				Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners						
				Control pressure				Control pressure						
	s	h3		3	4	5	6	3	4	5	6			
32	M11	24	6/10	NG5	NG2	NG2	NG2	NG5	NG2	NG2	NG2			
40				NG5	NG5	NG5	NG10	NG5	NG5	NG5				
50								NG10	NG10		NG10	NG10	NG10	
65				NG15	NG15	NG15	NG15			NG15	NG15			
80							NG20			NG20	NG20	NG20	NG20	NG20
100	M14	24		30	NG30	NG30		NG30						
125					NG40	NG40		NG40	NG40			NG40	NG40	
150	M19	35		35			NG60		NG60	NG60				
200					NG60	NG60	NG60	NG60	NG60	NG60				
250								NG60	NG60	NG60				
300	M22	40		NG120	NG80	NG60	NG60	NG120	NG80	NG60	NG60			
350	C30	55		55	NG120	NG80	NG60	NG60	NG160	NG120	NG80	NG80		
400					C36	65	65	NG120	NG80	NG80	NG240	NG160	NG120	NG120
450								NG160	NG120	NG160	NG340	NG240	NG160	NG160
500	C40	65		65	NG240	NG160	NG160	NG160	NG340	NG240	NG240	NG160		
550	C50	65	65	65	65	65	65	NG500	NG340	NG240	NG240			
600								NG340	NG240	NG240	NG240	NG240		

Table 12: Throttling function: liners for all fluids(6/10 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners		
				Control pressure		
	s	h3		4	5	6
32	M11	24	6/10	NG2	NG2	NG2
40				NG5	NG5	NG5
50						
65				NG10	NG10	NG10

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DN	Shaft end		Maximum pressure [bar]	All fluids: all liners			
				Control pressure			
	s	h3		4 [bar]	5 [bar]	6 [bar]	
80	M11	24	6/10	NG10	NG10	NG5	
100	M14	24		NG15	NG15	NG10	
125		30		NG20		NG15	
150		NG30		NG20	NG20		
200	M19	35		NG40	NG30	NG30	
250	M22	40		NG80	NG60	NG60	
300				NG120	NG80	NG80	
350				C30	55	NG160	NG120
400	C36	65		NG240	NG160	NG160	NG160
450					NG240		
500	C40	65		NG340	NG240	NG240	NG240
550	C50						
600							

**Table 13: Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners				Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners					
				Control pressure				Control pressure					
	s	h3		3 [bar]	4 [bar]	5 [bar]	6 [bar]	3 [bar]	4 [bar]	5 [bar]	6 [bar]		
32	M11	24	16	NG5	NG2	NG2	NG2	NG5	NG2	NG2	NG2		
40					NG10	NG5	NG5		NG5	NG10		NG10	NG5
50				NG10		NG10	NG10	NG15		NG15	NG10	NG10	
65								NG20		NG15	NG15	NG15	NG15
80				M14	24	NG30	NG20	NG15	NG15	NG40	NG30	NG20	NG20
100	M19	35				NG40	NG30	NG20	NG20	NG60	NG40	NG30	NG30
125				M22	40	NG60	NG40	NG40	NG30	NG80	NG60	NG60	NG40
150						C30	55	NG120	NG120	NG60	NG60	NG160	NG120
200	C36	65		NG160	NG160			NG80	NG80	NG240	NG160	NG120	NG120
250						NG240	NG160	NG160	NG120	NG340	NG240	NG160	NG160
300	C40	65		NG340	NG240	NG240	NG80	NG160	NG500	NG340	NG340	NG240	
350										C50	65	NG500	NG340
400	NG500	NG340		NG340									
450	NG500	NG340		NG340									
500	C50	65		NG500	NG340	NG240	NG240	NG700	NG500	NG500	NG340	NG240	
550										NG500	NG340	NG340	
600									NG500	NG340	NG340		

**Table 14: Throttling function: liners for all fluids(16 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners								
				Control pressure								
	s	h3		4 [bar]	5 [bar]	6 [bar]						
32	M11	24	16	NG2	NG2	NG2						
40				NG10	NG10	NG10	NG5	NG5				
50									NG10	NG10	NG10	NG5
65												
80				M14	24	NG20	NG20	NG20				
100	M19	35				NG30	NG30	NG30				
125				M22	40	NG40	NG40	NG40				
150						C30	55	NG60	NG60	NG60		
200	C36	65		NG120	NG120			NG120				
250				C40	65	NG160	NG160	NG160				
300	C50	65				NG240	NG240	NG240				
350						NG240	NG240	NG240				

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners		
				Control pressure		
	s	h3		4 [bar]	5 [bar]	6 [bar]
400	C36	55	16	NG240	NG160	NG120
450					NG240	NG160
500	C40	65		NG340	NG340	NG240
550	C50			NG500		NG500
600						

**Table 15: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners				Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners								
				Control pressure				Control pressure								
	s	h3		3 [bar]	4 [bar]	5 [bar]	6 [bar]	3 [bar]	4 [bar]	5 [bar]	6 [bar]					
32	M11	24	20	NG5	NG2	NG2	NG2	NG5	NG2	NG2	NG2					
40				NG10	NG5	NG5	NG5	NG10	NG10	NG5	NG5	NG5				
50													NG15	NG15	NG10	NG10
65				NG20	NG15	NG15	NG20	NG20	NG20							
80										NG30	NG20	NG15				
100	M14	24		NG40	NG30	NG30	NG20	NG60	NG60	NG40	NG30					
125		30		NG80	NG60	NG40	NG40	NG120	NG80	NG60	NG60					
150	M19	35		NG120	NG80	NG60	NG60	NG160	NG120	NG120	NG80					
200				NG160	NG120	NG120	NG80	NG240	NG160	NG160	NG120					
250				NG340	NG240	NG160	NG160	NG500	NG340	NG240	NG240					
300				M22	40	NG500	NG340	NG240	NG240	NG700	NG500	NG340				
350				C30	55	NG500	NG340	NG240	NG240	-	NG700	NG500				
400	C36	NG500	NG340	NG240		NG240	-	NG700	NG500							
450		C40	NG500	NG340		NG240	NG240	-	NG700	NG500						
500	C50	65	NG500	NG340		NG240	NG240	-	NG700	NG500						
550	C50	65	NG500	NG340	NG240	NG240	-	NG700	NG500							
600																

**Table 16: Throttling function: liners for all fluids(20 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners								
				Control pressure								
	s	h3		4 [bar]	5 [bar]	6 [bar]						
32	M11	24	20	NG2	NG2	NG2						
40				NG10	NG5	NG5	NG5					
50								NG15	NG15	NG10	NG10	
65				NG20	NG15	NG15	NG15					
80												NG30
100	M14	24		NG40	NG30	NG30	NG20	NG60	NG60	NG40	NG30	
125		30		NG80	NG60	NG40	NG40	NG120	NG80	NG60	NG60	
150	M19	35		NG120	NG80	NG60	NG60	NG160	NG120	NG120	NG80	
200				NG160	NG120	NG120	NG80	NG240	NG160	NG160	NG120	
250				NG340	NG240	NG160	NG160	NG500	NG340	NG240	NG240	
300				M22	40	NG500	NG340	NG240	NG240	NG700	NG500	NG340
350				C30	55	NG500	NG340	NG240	NG240	-	NG700	NG500
400	C36	NG500	NG340	NG240		NG240	-	NG700	NG500			
450		C40	NG500	NG340		NG240	NG240	-	NG700	NG500		
500	C50	65	NG500	NG340		NG240	NG240	-	NG700	NG500		
550	C50	65	NG500	NG340	NG240	NG240	-	NG700	NG500			
600												



# ACTAIR NG (ISORIA 25)

**Table 17: Shut-off function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner					
				Control pressure					
	s	h3		3	4	5	6		
				[bar]	[bar]	[bar]	[bar]		
32	M11	24	25	NG5	NG2	NG2	NG2		
40				NG10	NG5	NG5	NG5		
50									
65				NG15	NG10	NG10	NG10		
80									
100	M14	24	25	NG20	NG15	NG15	NG10		
125				NG30	NG20	NG20	NG20		
150									
200	M19	35	25	NG40	NG30	NG30	NG30		
250				NG60	NG40	NG60	NG40		
300	M22	40	25	NG80	NG60	NG80	NG80		
350	C30	55	25	NG160	NG120	NG80	NG80		
400	C36			NG340	NG240	NG160	NG160		
450									
500	C40			65	25	NG500	NG340	NG240	NG240
550	C50					NG700	NG500	NG340	NG340
600									
700	C70	73	25	-	-	-	-		
800	C80			NG700	NG500	NG340	NG340		
900									
1000								C90	-

**Table 18: Throttling function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner				
				Control pressure				
	s	h3		4	5	6		
				[bar]	[bar]	[bar]		
32	M11	24	25	NG5	NG5	NG2		
40				NG10	NG5	NG5		
50								
65				NG15	NG10	NG10		
80								
100	M14	24	25	NG20	NG15	NG15		
125				NG30	NG30	NG20		
150								
200	M19	35	25	NG40	NG40	NG40		
250				NG60	NG40	NG60		
300	M22	40	25	NG120	NG80	NG60		
350	C30	55	25	NG160	NG120	NG120		
400	C36			NG240	NG160	NG240	NG240	
450								
500	C40			65	25	NG340	NG240	NG240
550	C50					NG500	NG340	NG340
600								
700	C70	73	25	NG700	NG700	NG500		
800	C80			NG700	NG500	NG340	NG340	
900								
1000								C90

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Single-acting Pneumatic Actuator

## DYNACTAIR NG (ISORIA 20)



Fig. 5: Unit comprising ISORIA 20/25 + Dynactair NG actuator

Table 19: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners			
	s	h3		4	5	6	4	5	6	
				[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	
32	M11	24	6/10	NG4/4	NG2	NG2	NG4/4	NG2	NG2	
40				NG6/4	NG4	NG4	NG6/4	NG4	NG4	
50					NG6	NG6	NG8/4	NG6	NG6	
65				M14	30	NG8/4	NG12/4	NG8	NG8	NG16/4
80	NG16/4	NG12				NG12	NG25/4	NG16	NG16	
100	NG25/4	NG16				NG16	NG35/4	NG25	NG25	
125	M19	35		NG25	NG25	NG25	NG50/4	NG35	NG35	
150				NG35/4	NG80/4	NG50	NG50	NG120/4	NG80	NG80
200	C30	55		NG120/4	NG80	NG80	NG240/4	NG120	NG120	
250				NG120	NG120	NG160		NG160		
300				C36	65	NG160/4	NG240/4	NG160	NG160	NG350/4
350	NG240/4	NG160				NG160	NG240	NG240	NG350	NG350
400	C40	65	NG240	NG240	NG240	-	NG350	NG350		
450			NG350/4	NG350/4	NG350/4	-	NG350	NG350		
500	C50	65	NG350/4	NG350/4	NG350/4	-	NG350	NG350		
550			NG350/4	NG350/4	NG350/4	-	NG350	NG350		
600				NG350/4	NG350/4	NG350/4	-	NG350	NG350	

Table 20: Throttling function: liners for all fluids(6/10 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all other liners			
	s	h3		4	5	6	
				[bar]	[bar]	[bar]	
32	M11	24	6/10	NG4/4	NG2	NG2	
40				NG6/4	NG4	NG4	
50				NG8/4	NG6	NG6	
65				M14	30	NG16/4	NG12
80	NG25/4	NG16				NG16	
100	NG35/4	NG25				NG25	
125	M19	35		NG50/4	NG35	NG35	
150				NG50/4	NG35	NG35	
200					NG50/4	NG35	NG35

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DN	Shaft end		Maximum pressure [bar]	All fluids: all other liners		
				4	5	6
	s	h3		[bar]	[bar]	[bar]
250	M19	35	6/10	NG50/4	NG35	NG35
300	M22	40		NG120/4	NG80	NG80
350	C30	55			NG120	NG120
400	C36			NG240/4	NG160	NG160
450					NG240	NG240
500	C40	65		NG350/4		
550	C50			-	NG350	NG350
600				-		

**Table 21:** Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners		
				4	5	6	4	5	6
	s	h3		[bar]	[bar]	[bar]	[bar]	[bar]	[bar]
32	M11	24	16	NG4/4	NG2	NG2	NG4/4	NG2	NG2
40									
50				NG6/4	NG4	NG4	NG6/4	NG4	NG4
65					NG6	NG6	NG8/4	NG6	NG6
80				NG8/4					
100	M14	24		NG12/4	NG8	NG8	NG16/4	NG12	NG12
125		30		NG16/4	NG12	NG12	NG25/4	NG16	NG16
150		NG25/4		NG16	NG16	NG35/4	NG25	NG25	
200	M19	35		NG35/4	NG25	NG25	NG50/4	NG35	NG35
250				NG50/4	NG50	NG50	NG120/4	NG80	NG80
300	M22	40	NG120/4	NG80	NG80		NG120	NG120	
350	C30	55		NG120	NG120	NG240/4	NG160	NG160	
400	C36		NG240/4			NG350/4	NG240	NG240	
450			NG240	NG240	-	NG350	NG350		
500	C40	65	NG350/4			-			
550	C50		-	NG350	NG350	-	-	-	
600			-			-	-	-	

**Table 22:** Throttling function: liners for all fluids(16 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners			
				4	5	6	
	s	h3		[bar]	[bar]	[bar]	[bar]
32	M11	24	16	NG4/4	NG2	NG2	
40							
50				NG6/4	NG4	NG4	
65				NG8/4	NG6	NG6	
80							
100	M14	24		NG16/4	NG12	NG12	
125		30		NG25/4	NG16	NG16	
150		NG35/4		NG25	NG25		
200	M19	35		NG50/4	NG35	NG35	
250				NG120/4	NG80	NG80	
300	M22	40		NG120	NG120		
350	C30	55	NG240/4	NG160	NG160		
400	C36		NG350/4	NG240	NG240		
450			-	NG350	NG350		
500	C40	65	-				
550	C50		-	-	-		
600			-	-	-		

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**Table 23: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners		
	s	h3		4	5	6	4	5	6
				[bar]	[bar]	[bar]	[bar]	[bar]	[bar]
32	M11	24	20	NG4/4	NG2	NG2	NG4/4	NG2	NG2
40				NG6/4	NG4	NG4	NG6/4	NG4	NG4
50									
65				NG8/4	NG6	NG6	NG8/4	NG6	NG6
80									
100	M14	24	NG12/4	NG8	NG8	NG16/4	NG12	NG12	
125		30	NG16/4	NG12	NG12	NG25/4	NG16	NG16	
150		NG25/4	NG16	NG16	NG35/4	NG25	NG25		
200	M19	35	NG35/4	NG25	NG25	NG50/4	NG50	NG50	
250			NG80/4	NG50	NG50	NG120/4	NG80	NG80	
300	M22	40	NG120/4	NG80	NG80	NG160/4	NG120	NG120	
350	C30	55	NG160/4	NG120	NG120	NG240/4	NG240	NG240	
400	C36		NG240/4	NG240	NG240	-	-	-	
450			NG350/4	NG240	NG240	-	NG350	NG350	
500	C40	65	-	NG350	NG350	-	-	-	
550	C50		-	-	-	-	-	-	
1)			-	-	-	-	-	-	

**Table 24: Throttling function: liners for all fluids(20 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners			
	s	h3		4	5	6	
				[bar]	[bar]	[bar]	
32	M11	24	20	NG4/4	NG2	NG2	
40				NG6/4	NG4	NG4	NG4
50							
65				NG8/4	NG6	NG6	NG6
80							
100	M14	24	NG16/4	NG12	NG12		
125		30	NG25/4	NG16	NG16		
150		NG35/4	NG25	NG25			
200	M19	35	NG50/4	NG50	NG50		
250			NG120/4	NG80	NG80		
300	M22	40	NG160/4	NG120	NG120		
350	C30	55	NG240/4	NG240	NG240		
400	C36		-	-	-		
450			-	NG350	NG350		
500	C40	65	-	-	-		
550	C50		-	-	-		
600			-	-	-		

<sup>1</sup> Shut-off function and throttling function

## DYNACTAIR NG (ISORIA 25)

**Table 25:** Shut-off function: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner		
	s	h3		4 [bar]	5 [bar]	6 [bar]
32	M11	24	25	NG4/4	NG2	NG2
40				NG6/4	NG4	NG4
50						
65				NG8/4	NG6	NG6
80					NG8	NG8
100	M14	24		NG16/4	NG12	NG12
125				NG25/4	NG16	NG16
150						
200	M19	35		NG50/4	NG35	NG35
250				NG120/4	NG80	NG80
300	M22	40			NG240/4	NG120
350				NG350/4		NG240
400					-	NG350
450	C40	65		-	-	-
500				C50	-	-
550			-		-	-
600	C70	73	-		-	-
700			C80	-	-	-
800				-	-	-
900	C90	-		-	-	
1000		-	-	-		

**Table 26:** Throttling function: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner		
	s	h3		4 [bar]	5 [bar]	6 [bar]
32	M11	24	25	NG6/4	NG4	NG4
40				NG8/4	NG6	NG6
50						
65				NG12/4	NG8	NG8
80					NG12	NG12
100	M14	24		NG25/4	NG16	NG16
125				NG35/4	NG25	NG25
150						
200	M19	35		NG50/4	NG35	NG35
250				NG80/4	NG120/4	NG50
300	M22	40				NG120
350				NG240/4	NG160	NG160
400						
450	-	NG350		NG350		
500	C40	65		-	-	-
550			C50	-	-	-
600				-	-	-
700	C70	73		-	-	-
800			C80	-	-	-
900				-	-	-
1000	C90	-		-	-	

Electric Actuators

## AQ AQL - BERNARD CONTROLS (ISORIA 20)

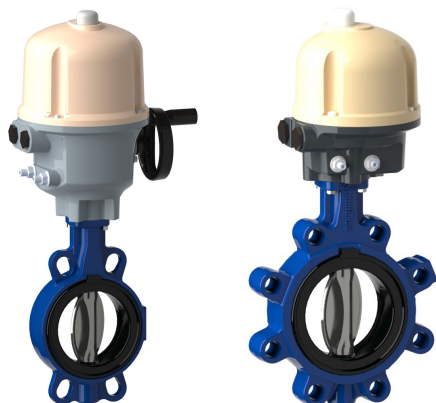


Fig. 6: Unit comprising ISORIA 20/25 + AQ/AQL actuator

Table 27: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners	
	s	h3		AQL	AQ	AQL	AQ
32	M11	24	6/10	AQ7L	AQ5	AQ7L	AQ5
40							
50							
65							
80							
100	M14	24			AQ10	-	
125		30		-		-	AQ15
150				-	AQ15	-	AQ25
200	M19	35			AQ25	-	AQ30
250					-		-
300			M22	40	-	AQ50	-
350	C30	55		-	-	-	-
400	C36			-	-	-	-

Table 28: Throttling function: liners for all fluids(6/10 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners		
	s	h3		AQL	AQ	
32	M11	24	6/10	AQ7L	AQ5	
40						
50						
65						
80						
100	M14	24			-	
125		30		-		AQ15
150				-		AQ25
200	M19	35			-	AQ30
250					-	
300			M22	40	-	
350	C30	55		-	-	
400	C36			-	-	

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**Table 29: Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners					
	s	h3		AQL	AQ	AQL	AQ				
32	M11	24	16	AQ7L	AQ5	AQ7L	AQ5				
40											
50											
65											
80											
100	M14	24		-	-	-	-				
125		30						-	-	-	AQ15
150		-						AQ15	-	-	AQ25
200	M19	35		-	AQ25	-	-	AQ50			
250				-	AQ50	-	-	-			
300			M22	40	-	-	-	-			
350	C30	55	-	-	-	-	-				
400	C36		-	-	-	-	-				

**Table 30: Throttling function: liners for all fluids(16 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners					
	s	h3		AQL	AQ				
32	M11	24	16	AQ7L	AQ5				
40									
50									
65									
80									
100	M14	24		-	-	-			
125		30					-	-	AQ15
150		-					-	-	AQ25
200	M19	35		-	-	-	AQ50		
250				-	-	-	-		
300			M22	40	-	-	-		
350	C30	55	-	-	-	-			
400	C36		-	-	-	-			

**Table 31: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners		Non-lubricating fluids XA/XC/XV/K liners All fluids: all other liners				
	s	h3		AQL	AQ	AQL	AQ			
32	M11	24	20	AQ7L	AQ5	AQ7L	AQ5			
40										
50										
65										
80										
100	M14	24		-	-	-	-			
125		30						-	-	AQ15
150		-						AQ15	-	-
200	M19	35		-	AQ25	-	-	AQ50		
250				-	AQ50	-	-	-		
300			M22	40	-	-	-	-		
350	C30	55	-	-	-	-	-			
400	C36		-	-	-	-	-			

**Table 32: Throttling function: liners for all fluids(20 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners	
	s	h3		AQL	AQ
32	M11	24	20	AQ7L	AQ5
40					
50					
65					
80					
100	M14	24		-	AQ10
125		30		-	AQ15
150		-		AQ25	
200	M19	35		-	AQ50
250				-	-
300	M22	40		-	-
350	C30	55		-	-
400	C36		-	-	

## AQ/AQL - BERNARD CONTROLS (ISORIA 25)

**Table 33: Shut-off function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner	
	s	h3		AQL	AQ
32	M11	24	25	AQ7L	AQ5
40					
50					
65					
80					
100	M14	24		-	AQ10
125		30		-	AQ15
150		-		AQ25	
200	M19	35		-	AQ30
250				-	AQ50
300	M22	40		-	-
350	C30	55		-	-
400	C36		-	-	

**Table 34: Throttling function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner	
	s	h3		AQL	AQ
32	M11	24	25	AQ7L	AQ5
40					
50					
65					
80					
100	M14	24		-	AQ10
125		30		-	AQ15
150		-		AQ25	
200	M19	35		-	AQ30
250				-	AQ50
300	M22	40		-	-
350	C30	55		-	-
400	C36		-	-	



## SQ - BERNARD CONTROLS (ISORIA 20)



Fig. 7: Unit comprising ISORIA 20/25 + SQ - BERNARD CONTROLS actuator

Table 35: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners	Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners
	s	h3		SQ	SQ
32	M11	24	6/10	SQ6	SQ6
40					
50					
65					
80					
100	M14	24	6/10	SQ10	SQ10
125		30		SQ15	SQ15
150				SQ15	SQ25
200	M19	35	6/10	SQ25	SQ60
250					
300	M22	40	6/10	SQ60	
350	C30	55			SQ80
400	C36			SQ80	SQ120
450				SQ120	-

Table 36: Throttling function: liners for all fluids(6/10 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners	
	s	h3		SQ - Intel+	
32	M11	24	6/10	SQ10	
40					
50					
65					
80					
100	M14	24	6/10	SQ10	
125		30			SQ15
150					SQ25
200	M19	35	6/10	SQ60	
250					
300	M22	40	6/10		
350	C30	55			SQ80
400	C36			SQ120	
450				-	

**Table 37: Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners SQ	Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners SQ
	s	h3			
32	M11	24	16	SQ6	SQ6
40					
50					
65					
80					
100	M14	24	16	SQ10	SQ10
125		30		SQ15	SQ15
150		SQ15		SQ25	
200	M19	35	16	SQ25	SQ60
250				SQ60	
300	M22	40	16	SQ80	SQ80
350	C30	55			SQ80
400	C36		SQ120	-	
450			-	-	

**Table 38: Throttling function: liners for all fluids(16 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners SQ - Intel+	
	s	h3			
32	M11	24	16	SQ10	
40					
50					
65					
80					
100	M14	24	16	SQ15	
125		30			SQ25
150		SQ25			SQ60
200	M19	35	16	SQ60	
250					
300	M22	40	16	SQ80	
350	C30	55		SQ120	
400	C36		-		
450			-	-	

**Table 39: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners SQ	Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners SQ
	s	h3			
32	M11	24	20	SQ6	SQ6
40					
50					
65					
80					
100	M14	24	20	SQ10	SQ10
125		30		SQ15	SQ15
150		SQ15		SQ25	
200	M19	35	20	SQ25	SQ60
250				SQ60	
300	M22	40	20	SQ80	SQ120
350	C30	55		SQ120	-
400	C36		-		
450			-	-	

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**Table 40: Throttling function: liners for all fluids(20 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners SQ - Intel+			
	s	h3					
32	M11	24	20	SQ10			
40							
50							
65							
80							
100	M14	24		20	SQ15		
125		30				SQ25	
150						SQ60	
200	M19	35			20	SQ80	
250							SQ120
300	M22	40				20	-
350	C30	55					-
400	C36						-
450							-

## SQ - BERNARD CONTROLS (ISORIA 25)

**Table 41: Shut-off function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner SQ			
	s	h3					
32	M11	24	25	SQ6			
40							
50							
65							
80							
100	M14	24		25	SQ10		
125		30			SQ15		
150					SQ25		
200	M19	35			25	SQ60	
250							
300	M22	40				25	SQ80
350	C30	55					SQ120
400	C36						-

**Table 42: Throttling function: XC liner for lubricating fluids**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner SQ - Intel+			
	s	h3					
32	M11	24	25	SQ10			
40							
50							
65							
80							
100	M14	24		25	SQ15		
125		30			SQ25		
150					SQ60		
200	M19	35			25	SQ80	
250							
300	M22	40				25	-
350	C30	55					-
400	C36						-

## SQ - AUMA (ISORIA 20)



Fig. 8: Unit comprising ISORIA 20/25 + SQ - AUMA actuator

Table 43: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners	Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners
	s	h3		SQ - AUMA	SQ - AUMA
32	M11	24	6/10	SQ05.2	SQ05.2
40					
50					
65					
80					
100	M14	24	6/10	SQ05.2	SQ05.2
125		30			
150					
200	M19	35	6/10	SQ07.2	SQ07.2
250				SQ10.2	SQ10.2
300	M22	40	6/10	SQ10.2	SQ12.2
350	C30	55			
400	C36		6/10	SQ12.2	-
450					

Table 44: Throttling function: liners for all fluids(6/10 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners
	s	h3		SQ - AUMA
32	M11	24	6/10	SQ05.2
40				
50				
65				
80				
100	M14	24	6/10	SQ05.2
125		30		
150				
200	M19	35	6/10	SQ07.2
250				SQ10.2
300	M22	40	6/10	SQ12.2
350	C30	55		
400	C36		6/10	-
450				

**Table 45: Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/ XV/K liners	Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners				
	s	h3		SQ - AUMA	SQ - AUMA				
32	M11	24	16	SQ05.2	SQ05.2				
40									
50									
65									
80									
100	M14	24		16	SQ05.2	SQ05.2			
125		30							
150									
200	M19	35			16	SQ07.2	SQ07.2		
250						SQ10.2	SQ10.2		
300	M22	40				16	SQ12.2	SQ12.2	
350									C30
400	C36	55					16	-	
450									-

**Table 46: Throttling function: liners for all fluids(16 bar)**

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners				
	s	h3		SQ - AUMA				
32	M11	24	16	SQ05.2				
40								
50								
65								
80								
100	M14	24		16	SQ05.2			
125		30						
150								
200	M19	35			16	SQ07.2		
250						SQ10.2		
300	M22	40				16	SQ12.2	
350							C30	55
400	C36	55						
450							-	-

**Table 47: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XA/XC/XV/K liners	Non-lubricating fluids: XA/ XC/ XV/ K liners All fluids: all other liners				
	s	h3		SQ - AUMA	SQ - AUMA				
32	M11	24	20	SQ05.2	SQ05.2				
40									
50									
65									
80									
100	M14	24		20	SQ05.2	SQ05.2			
125		30							
150									
200	M19	35			20	SQ07.2	SQ07.2		
250						SQ10.2	SQ10.2		
300	M22	40				20	SQ12.2	SQ12.2	
350									C30
400	C36	55					20	-	
450									-

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**Table 48:** Throttling function: liners for all fluids(20 bar)

DN	Shaft end		Maximum pressure [bar]	All fluids: all liners SQ - AUMA			
	s	h3					
32	M11	24	20	SQ05.2			
40							
50							
65							
80							
100	M14	24		20	SQ07.2		
125		30					
150							
200	M19	35			20	SQ10.2	
250						SQ12.2	
300	M22	40				20	-
350	C30	55					-
400	C36						-
450							-

## SQ - AUMA (ISORIA 25)

**Table 49:** Shut-off function: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner SQ - AUMA			
	s	h3					
32	M11	24	25	SQ05.2			
40							
50							
65							
80							
100	M14	24		25	SQ07.2		
125		30					
150							
200	M19	35			25	SQ10.2	
250						SQ12.2	
300	M22	40				25	-
350	C30	55					-
400	C36						-
450							-

**Table 50:** Throttling function: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner SQ - AUMA			
	s	h3					
32	M11	24	25	SQ05.2			
40							
50							
65							
80							
100	M14	24		25	SQ07.2		
125		30					
150							
200	M19	35			25	SQ10.2	
250						SQ12.2	
300	M22	40				25	-
350	C30	55					-
400	C36						-
450							-

Hydraulic Actuators

# HQ (ISORIA 20)



Fig. 9: Unit comprising ISORIA 20/25 + HQ actuator

Table 51: Shut-off function: liners for lubricating fluids and non-lubricating fluids (6/10 bar)

DN	Shaft end		Maximum pressure	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners						
				Hydraulic pressure			Hydraulic pressure						
	s	h3		[bar]	80	90	120/135	80	90	120/135			
					[bar]	[bar]	[bar]	[bar]	[bar]	[bar]			
32	M11	24	6/10	10	10	10	10	10	10				
40													
50													
65													
80													
100	M14	24		6/10	25	25	25	25	25	25			
125													
150													
200	M19	35			6/10	50	50	100	100	100	100		
250													
300	M22	40				6/10	200	200	200	200	200	200	
350													
400	C36	55					6/10	10	10	10	10	10	10
450													
500	C40	65						6/10	200	200	200	200	200
550													
600													

Table 52: Shut-off function: liners for lubricating fluids and non-lubricating fluids (16 bar)

DN	Shaft end		Maximum pressure	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners			
				Hydraulic pressure			Hydraulic pressure			
	s	h3		[bar]	80	90	120/135	80	90	120/135
					[bar]	[bar]	[bar]	[bar]	[bar]	[bar]
32	M11	24	16	10	10	10	10	10	10	
40										
50										

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DN	Shaft end		Maximum pressure	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners		
				Hydraulic pressure			Hydraulic pressure		
				80	90	120/135	80	90	120/135
				s	h3	[bar]	[bar]	[bar]	[bar]
65	M11	24	16	10	10	10	10	10	10
80		24							
100	M14			35	25	25	25	25	25
125		25							
150					M19	40	50	50	50
200	50	50		50					
250					M22	55	100	100	100
300	C30	55		100					
350					C36	65	200	200	200
400	200	200		200					
450			C40		65	200	200	200	200
500	C50	65		200					
550			600		65	200	200	200	200
600	600	65		200					

**Table 53: Shut-off function: liners for lubricating fluids and non-lubricating fluids (20 bar)**

DN	Shaft end		Maximum pressure	Lubricating fluids: XA/XC/XV/K liners			Non-lubricating fluids: XA/XC/XV/K liners All fluids: all other liners		
				Hydraulic pressure			Hydraulic pressure		
				80	90	120/135	80	90	120/135
				s	h3	[bar]	[bar]	[bar]	[bar]
32	M11	24	20	10	10	10	10	10	10
40									
50									
65									
80									
100	M14	24		25	25	25	25	25	
125		30							
150		M19		35	25	25	25	25	25
200	50								
250		M22		40	100	100	100	100	
300	C30		55						100
350		C36		65	200	200	200	200	
400	200		200						200
450		C40		65	200	200	200	200	
500	C50		65						200
550		600		65	200	200	200	200	
600	600		65						200



## HQ (ISORIA 25)

Table 54: Shut-off function: XC liner for lubricating fluids

DN	Shaft end		Maximum pressure [bar]	Lubricating fluids: XC liner		
				Hydraulic pressure		
	s	h3		80 [bar]	90 [bar]	120/135 [bar]
32	M11	24	25	10	10	10
40						
50						
65						
80						
100	M14	24		25	25	25
125		30				
150						
200	M19	35		50	50	50
250						
300	M22	40		100	100	100
350	C30	55				
400	C36	65		400	200	200
450						
500						
550	C50	73	800	800	800	
600						
700						
800	C70	1600	1600	1600	1600	
900	C80					
1000	C90					







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