

1.1630 SERIES MICROFLOW CONTROL VALVES

KOSO PARCOL S.r.l. a socio unico

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VECTOR

kentintrol™

REXA

**KOSO
HAMMEL DAHL**

1-1630 SERIES MICROFLOW CONTROL VALVES

When talking about microflow valves, the category with flow coefficient lower than 1 is normally referred to.

Nevertheless this limit is rather general; in a broader extent the "microflow" denomination apply to trims having very small seat diameters (lower than 2÷3 mm), or which in any case require a careful control of plug/seat clearances, to guarantee the repeatability of C_v versus travel curves.

Turbulent flow does not take place in such valves, even when servicing common liquids, (Re_v lower than 30000 abt).

For gas service the above is only possible when C_v is lower than 0.05.

Correct sizing of such valves must mainly take this problem into account by using F_R coefficient when calculating C_v factor.

F_L , x_T , F_d , beside obviously C_v factor for turbulent flow must be known versus different travel values.

Sizing is yet more difficult due to the fact that fluid flow may change from laminar to turbulent during the plug travel, thus causing rough mistakes when evaluating flow rate and valve rangeability.

1-1630 series PARCOL valves are designed and constructed to guarantee highly reliable performances and simple maintenance.

The QUICK CHANGE type trim guarantees the best plug/seat alignment and the possibility to test the flow coefficient in a reliable way, beside the easy maintenance characteristics.

For each 1-1630 valve having C_v coefficient lower than 0.08 the flow coefficient is tested in 100% open valve condition before shipment.



Two models are available:
1-1631 straight-way
1-1632 90° angle body

TECHNICAL DATA

BODY

- construction : machined from bar or forged workpiece
- materials : see material class; ASTM A105 carbon steel and AISI 316 stainless steel are in stock
- dimensions : 1/4", 1/2" and 3/4"
- connections : NPT threaded - UNI ISO 7.1 UNI - ANSI - DIN flanged
- ratings : threaded connections:
PN100 - ANSI 600
flanged connections:
PN 10-16-25-40-64-100
ANSI 150-300-600

BONNET

- types : normal and finned
- materials : same as for the body
- packing : adjustable tightening by means of hexagon ring nut
- sealing rings : - teflon V-ring VTPS type with preloading springs
- VTS type adjustable teflon V-rings
- double set of VPV type teflon V-rings for vacuum service
- TFG type graphited teflon
- GRF type pure graphite

PLUG

- type : - single spline for C_V up to 0.08 included
- double spline for C_V up to 0.3 included
- needle type for higher values
- characteristic : - linear
- guide : - spline plugs are top and port guided, needle plugs are top guided only
- materials : - see sub-class table

STEM

- construction : AISI 316 SS, ground and rolled R_a max = 0.3. Threaded into the plug and locked by punching

CAGE

- construction : hollow cylinder machined from bar
- materials : see sub-class table

SEAT

- mounting : fitted into the body with no threads. It is centered in the cage and therefore aligned with the plug. Sealing with the body is got by means of a flat gasket
- materials : see sub-class table
- tightness : IV to V according to IEC 534-4 classes

ACTUATOR

- type : \varnothing 220 mm 1-X-230 pneumatic diaphragm
- construction : - support of die-cast aluminium
- diaphragm case made of pressed steel plate
- diaphragm of neoprene with fabric insert
- the spring is preloaded by cartridge assembly according to the most severe safety regulations
- the actuator action can be easily changed without adding or modifying any part
- spring range : - 3÷15, 3÷9 and 9÷15 psi for split range service
- nominal thrust area: 160 cm²
- maximum air supply pressure: 2 bar
- action : "AIR-TO-EXTEND" (1-X-231) or "AIR-TO-RETRACT" (1-X-232)
- connections : 1/4" NPT
- accessories : - positioner
- filter reducer
- gate valve
- booster
- top handwheel operator
- The positioner is mounted according to IEC 534-6 standard.

C_V		0.005	0.01	0.02	0.04	0.08	0.16	0.24	0.3	0.45	0.6	0.8	1.06	1.64	2.5
Seat diameter mm		2		3			4		6	4		5	6	8	10
F_L	TRAVEL - mm	2	0.94		0.96		0.89	0.91	0.94						
		4	0.92		0.94		0.87	0.89	0.92						
		6	0.91		0.93		0.86	0.88	0.91						
		8	0.90		0.92		0.85	0.87	0.90						
x_T	TRAVEL - mm	2	0.75		0.78		0.67	0.70	0.75						
		4	0.72		0.75		0.64	0.67	0.72						
		6	0.70		0.73		0.63	0.66	0.70						
		8	0.69		0.72		0.61	0.64	0.69						
plug shape		SINGLE SPLINE				DOUBLE SPLINE			NEEDLE						

MAX ALLOWED Δp WITH CLOSED VALVE - bar

SPRING RANGE	SEAT LEAKAGE CLASS	SEAT DIAMETER - mm						
		2	3	4	5	6	8	10
CATEGORY 1	IV	100	100	100	100	94	52	32
	V	100	100	100	85	48	17	5
CATEGORY 2	IV	100	100	100	100	100	100	100
	V	100	100	100	100	100	100	84

Category 1 Spring range:

- 3+15 psi - air-to-open
- 3+9 psi - air-to-open
- 3+15 psi - air-to-close, 20 psi air supply
- 9+15 psi - air-to-close, 20 psi air supply

Category 2 Spring range:

- 3+9 psi - air-to close, 20 psi air supply
- 3+15 psi - air-to close, 25 psi air supply
- 9+15 psi - air-to-open

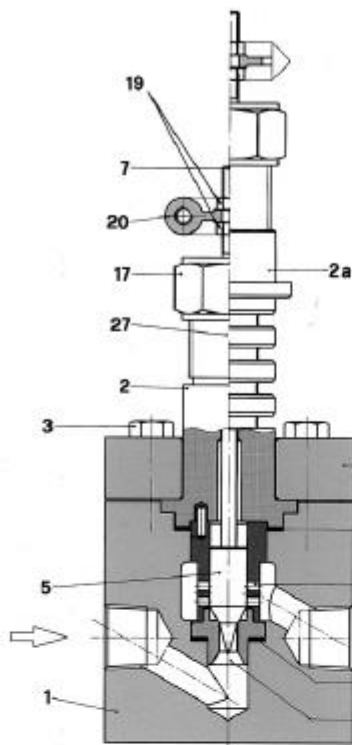
MATERIAL CLASSES

item	part name	A	G	H	L	M
		1	BODY	A105	AISI 316	AISI 316L
2	BONNET	AISI 316		AISI 316L	HASTELLOY C276	MONEL 400
2a	ADAPTER	AISI 304				
3	HEXAGON HEAD SCREW	8.8 UNI 3740	AISI 304			
4	BONNET FLANGE	CARBON STEEL	AISI 316			
5	PLUG	SEE SUB-CLASS TABLE				
6	SEAT					
7	STEM					
8	BODY/CAGE GASKET	PURE GRAPHITE				
9	CAGE	SEE SUB-CLASS TABLE				
14	SEAT GASKET	PURE GRAPHITE				
17	LOCKING NUT	CARBON STEEL	AISI 316			
19	COUNTER-NUT FOR TRAVEL INDICATOR	AISI 304				
20	TRAVEL INDICATOR	AISI 304				
27	PACKING	SEE CATALOG DESCRIPTION				

item	part name	01	02	03	04	05	06
		5	PLUG	17-4-PH H900	AISI 316	STELLITE GR. 6	AISI 316L
6	SEAT	17-4-PH H900	AISI 316	STELLITE GR. 6	AISI 316L	HASTELLOY C276	MONEL K 500
7	STEM	AISI 316	AISI 316	AISI 316	AISI 316L	HASTELLOY C276	MONEL K 500
9	CAGE	F8NM NITR.	S 21800	S 21800	HASTELLOY C276	HASTELLOY C276	MONEL 400

AVAILABILITY AND MAXIMUM SERVICE TEMPERATURE - °C

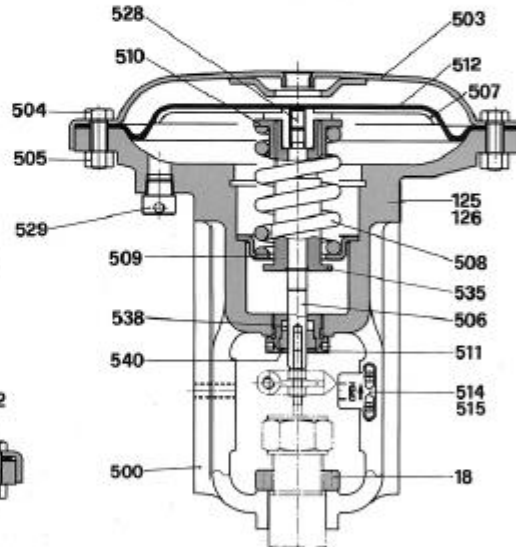
BASIC CLASS	item	part name	SUB CLASS											
			01		02		03		04		05		06	
			-30	+430	-30	+430	-30	+430	-200	+300	-200	+300	-200	+300
A	A 105	-30	+430	-30	+430	-30	+430					-30	+430	
G	AISI 316			-200	+430	-200	+430	-200	+300					
H	AISI 316L							-200	+300	-200	+300	-200	+300	
L	HASTELLOY C276									-200	+430			
M	MONEL 400											-200	+430	
SERVICE		STANDARD APPLICATIONS	STAINLESS TRIM				STAINLESS TRIM OF AISI 316L		- SPECIAL APPLICATIONS - CORROSIVE SERVICE					



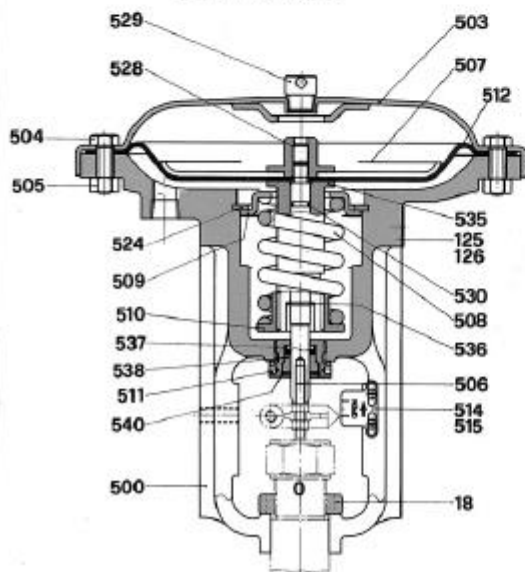
ITEM	PART NAME
1	STRAIGHT-THROUGH BODY
2	STANDARD BONNET
	FINNED BONNET
2a	ADAPTER
3	SCREW
4	BONNET FLANGE
5	PLUG
6	SEAT
7	STEM
8	BODY/CAGE GASKET
9	CAGE
14	SEAT GASKET
17	LOCKING NUT
19	COUNTERNUT FOR TRAVEL INDICATOR
20	TRAVEL INDICATOR
27	PACKING

* Utilize only for finned model

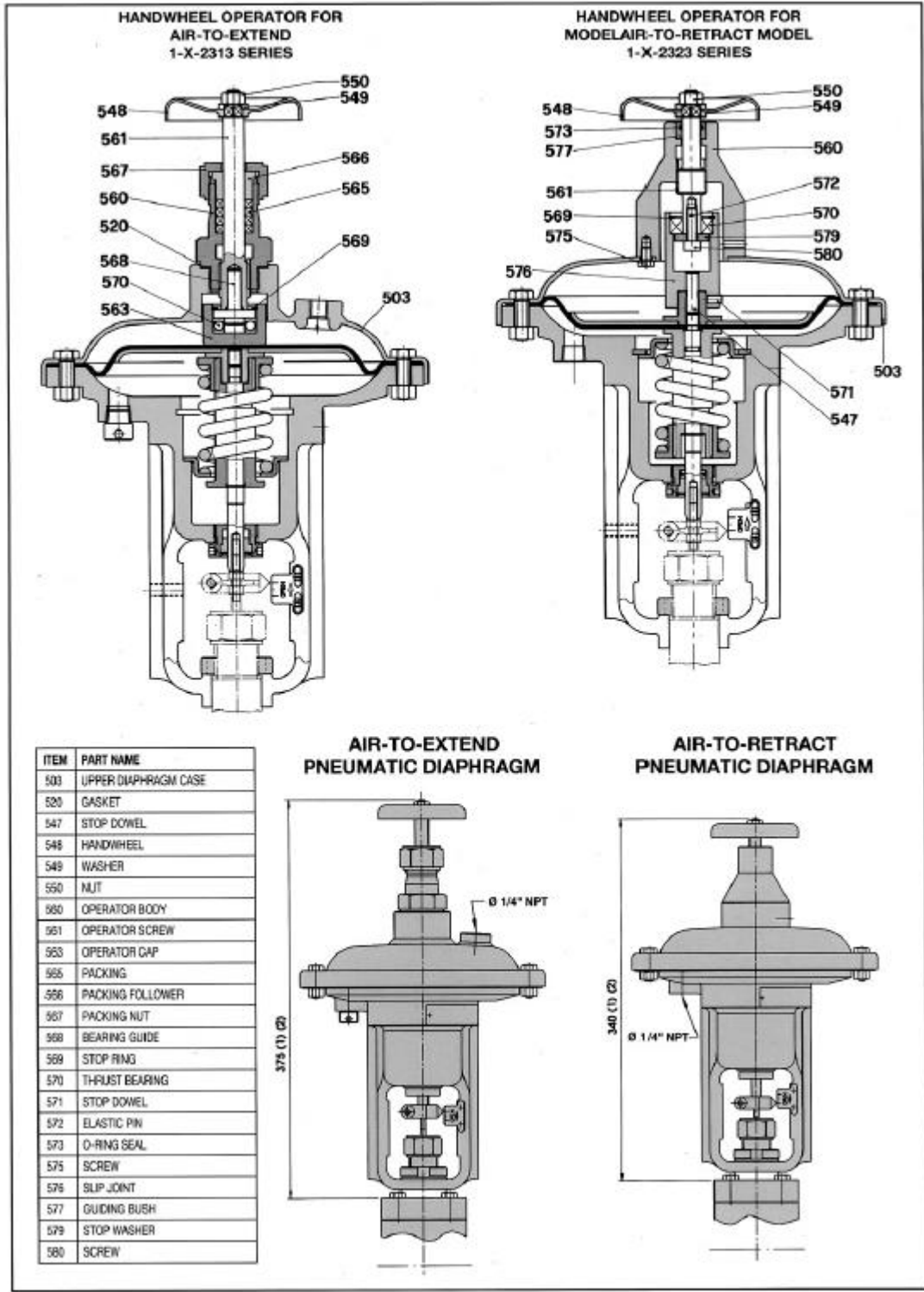
AIR-TO-EXTEND PNEUMATIC DIAPHRAGM 1-X-231 SERIES



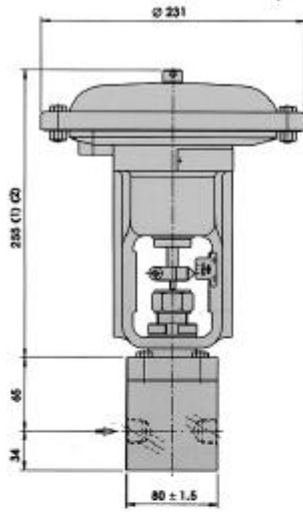
AIR-TO-RETRACT PNEUMATIC DIAPHRAGM 1-X-232 SERIES



ITEM	PART NAME	ITEM	PART NAME
18	LOCKING RING NUT FOR YOKE	512	DIAPHRAGM
125	SERIAL PLATE	514	TRAVEL INDICATOR
126	R/NUT (not seen)	515	SCREW
500	YOKE	524	STOP RING
503	UPPER DIAPHRAGM CASE	526	STOP DOWEL
504	SCREW	529	VENTING PLUG
505	NUT	530	O-RING
506	ACTUATOR STEM	535	SPRING LOADING SPOOL
507	DIAPHRAGM PLATE (assembled)	536	STOP
508	SPRING	537	SEAL RING
509	TOP SPRING SEAT	538	GUIDING BUSH
510	LOWER SPRING SEAT	540	STOP RING
511	THREADED BUSH		



**STRAIGHT-THROUGH VALVE WITH
THREADED CONNECTIONS (1-1631)**

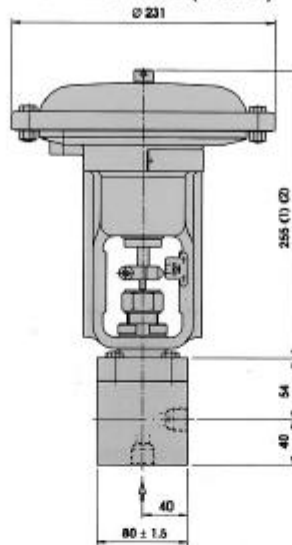


MASS 7.8 kg

- (1) - For model provided with finned bonnet 50 mm must be added
- (2) - 150 mm necessary for actuator disassembling

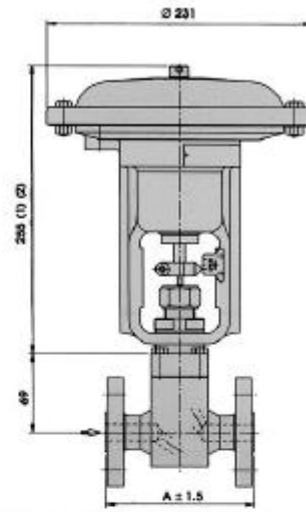
PNEUMATIC DIAPHRAGM	POSITIONER ACTION
1-X-231 AIR-TO-EXTEND	AIR-TO-EXTEND
1-X-232 AIR-TO-RETRACT	AIR-TO-RETRACT

**ANGLE VALVE WITH THREADED
CONNECTIONS (1-1632)**



MASS 7.8 kg

FLANGED VALVE



DN	Rating	A	Mass - kg
1/2"	ANSI 150-600	130	10.4
	PN 10-100		
3/4"	ANSI 150-600	150	12
	PN 10-100		

PNEUMATIC DIAPHRAGM	POSITIONER ACTION
1-X-231 AIR-TO-EXTEND	AIR-TO-RETRACT
1-X-232 AIR-TO-RETRACT	AIR-TO-EXTEND

