

## Regulador integrado Modelo 956

### Integrated regulators Type 956

#### Descripción general

##### Su funcionamiento

La familia de reguladores integrados Modelo 956 son autorreguladores pilotados aptos para alta o baja presión de entrada que entregan una presión de salida constante aguas abajo.

Están compuestos por un cuerpo principal sobre el que se integran los cabezales reguladores operativos fail to open, fail to close y bloqueo con sus correspondientes pilotos permitiendo una gran versatilidad de funciones según las necesidades operativas desde un solo regulador hasta dos reguladores y bloqueo incorporado.

Los cabezales reguladores y el bloqueo operan con asientos y obturadores totalmente independientes entre sí y con sus propios pilotos, funcionando realmente como distintas unidades de regulación ó bloqueo.

Con los reguladores integrados 956 es posible realizar la modificación de los seteos de los pilotos a distancia. Los equipos admiten su conexión con sistemas de control mas complejos como el Scada o similares.

La línea de reguladores 956 admite la posibilidad de incorporar accesorios adicionales, tales como silenciadores internos para atenuar el ruido producido en el salto de presión a valores aceptables por las normas vigentes.



#### General Description

##### Performance

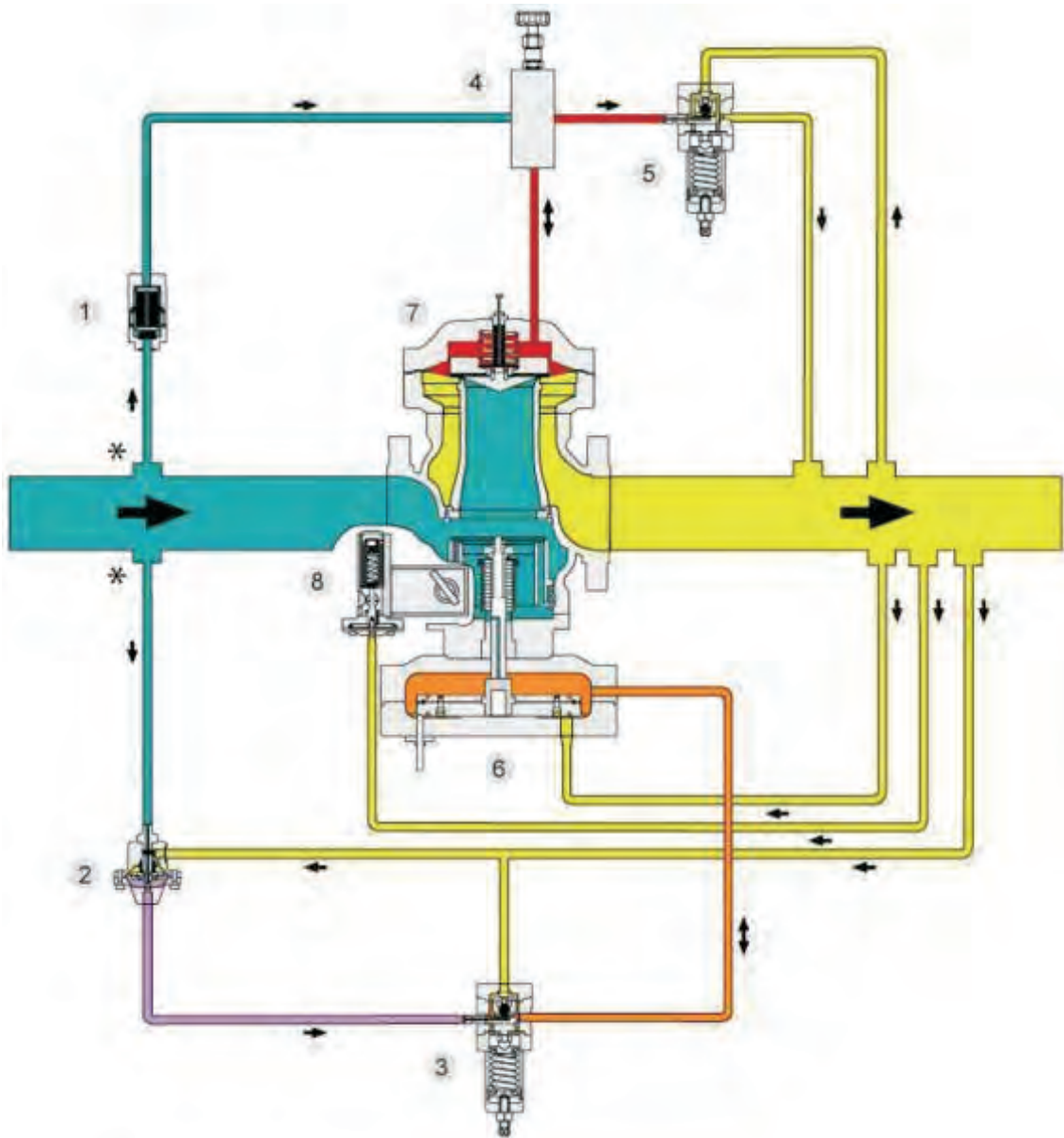
Type 956 Integrated regulators are piloted self-operated gas pressure regulators suited for high or low inlet pressures that deliver constant outlet pressures downstream.

They are composed of a main body, in which fail to open, fail to close operative regulating heads and SSV are integrated, each with their corresponding pilots. This structure provides great versatility of functions, depending on the specific operative requirements. It can vary from only one regulator to two, or incorporate safety shut off valve. Regulating heads and SSV operate with seats and shutters completely independent from one another and with their own pilots. This makes them function as actual different regulating or blocking units.

Integrated regulators type 956 allow for remote modifications of pilot settings. These units can be connected to more complex control systems such as SCADA or similar.

Regulators type 956 allow for the incorporation of internal silencers. These help in diminishing the noise produced by abrupt changes in pressures to values accepted by current regulations.





\* Las tomas de presión indicadas (aguas arriba) son conectadas al cuerpo de la válvula en fábrica. En la instalación solo se deben conectar las tomas de presión aguas abajo. El esquema es solo indicativo y puede diferir de la realidad.

\* The indicated pressure tubings (upstream) are already conected to the body. At instalation should be conected ONLY downstream pressure tubings. This scheme is indicative and can be different from actual configuration.

### Referencias

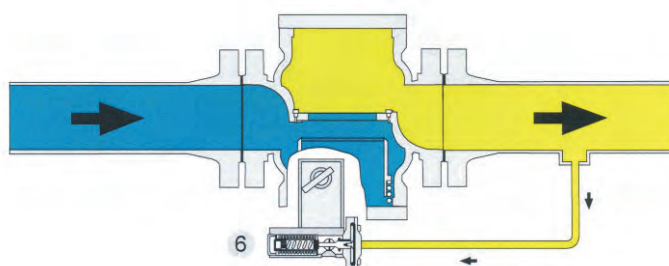
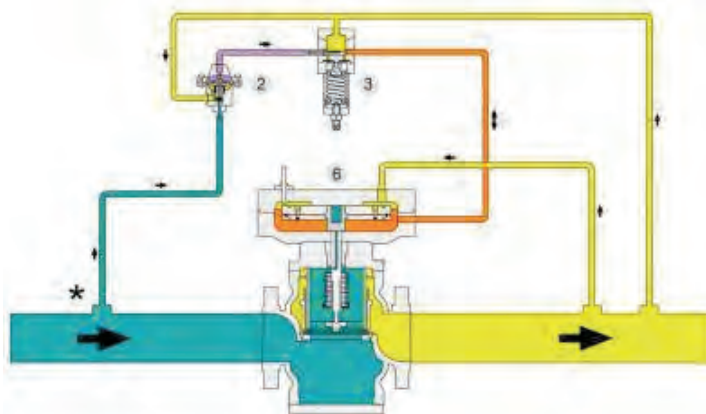
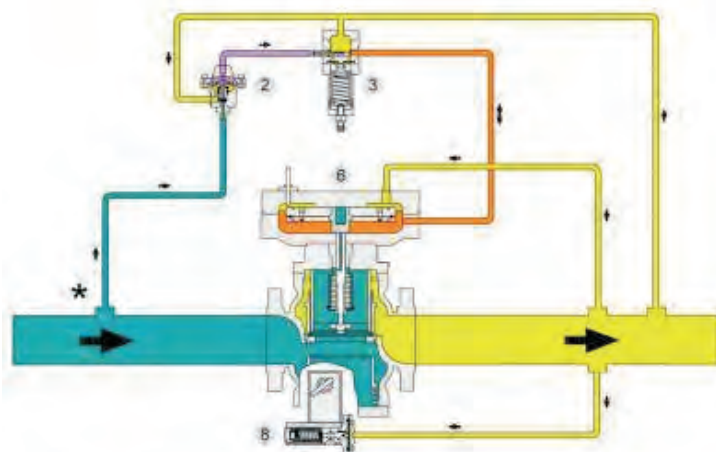
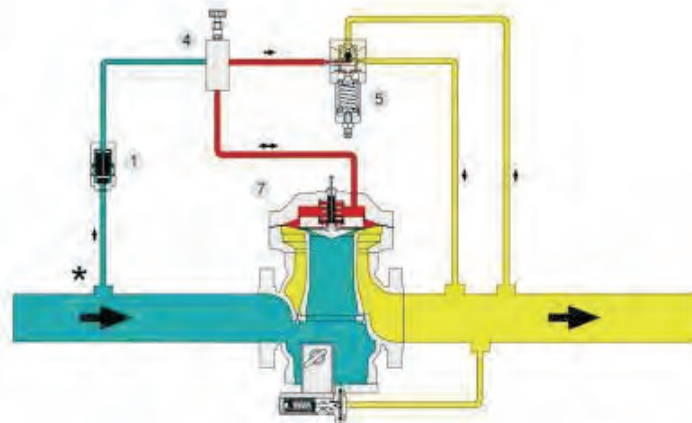
1. Filtro
2. Alimentador
3. Piloto de Regulador Monitor
4. Válvula Aguja y Válvula de Retención
5. Piloto de Regulador Activo
6. Regulador Monitor
7. Regulador Activo
8. Dispositivo de Bloqueo

- Presión de Entrada
- Presión de Salida
- Presión de Alimentación
- Presión de Comando Reg. Activo
- Presión de Reg. Monitor

### References

1. Filters
2. Feeder
3. Monitor Pilot
4. Needle Valve and Check Valve
5. Worker Pilot
6. Monitor
7. Worker
8. Slam Shut Device

- Inlet Pressure
- Outlet Pressure
- Feeding Pressure
- Command Pressure Worker
- Command Pressure Monitor



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\* The indicated pressure tubings (upstream) are already connected to the body. At installation should be connected ONLY downstream pressure tubings. This scheme is indicative and can be different from actual configuration.

## Formulas de dimensionamiento | Dimensions formula

En régimen crítico  $P1 \geq 2P2$  | Critical condition  $P1 \geq 2P2$

$$C_g = \frac{Q}{6,97 \cdot P_1} \sqrt{d \cdot (273,15 + t)}$$

Q= Caudal en Nm<sup>3</sup>/h | Flow measured in Sm<sup>3</sup>/h  
 P1= Presión absoluta de entrada | Absolute inlet pressure  
 P2= Presión absoluta de salida | Absolute outlet pressure  
 d= Densidad | Specific gravity  
 t= Temperatura en °C | Temperature measured in °C

En régimen subcrítico  $P1 < 2P2$  | Subcritical condition  $P1 < 2P2$

$$C_g = \frac{Q}{13,94} \sqrt{\frac{d \cdot (273,15 + t)}{P_2 (P_1 - P_2)}}$$

Q= Caudal en Nm<sup>3</sup>/h | Flow measured in Sm<sup>3</sup>/h  
 P1= Presión absoluta de entrada | Absolute inlet pressure  
 P2= Presión absoluta de salida | Absolute outlet pressure  
 d= Densidad | Specific gravity  
 t= Temperatura en °C | Temperature measured in °C

## Materiales | Materials

Cuerpos de fundición nodular (S150).  
 Cuerpos en acero al Carbono ASTM A 216 WCB (S300 / S600).  
 Internos de Acero inoxidable y elastómeros.

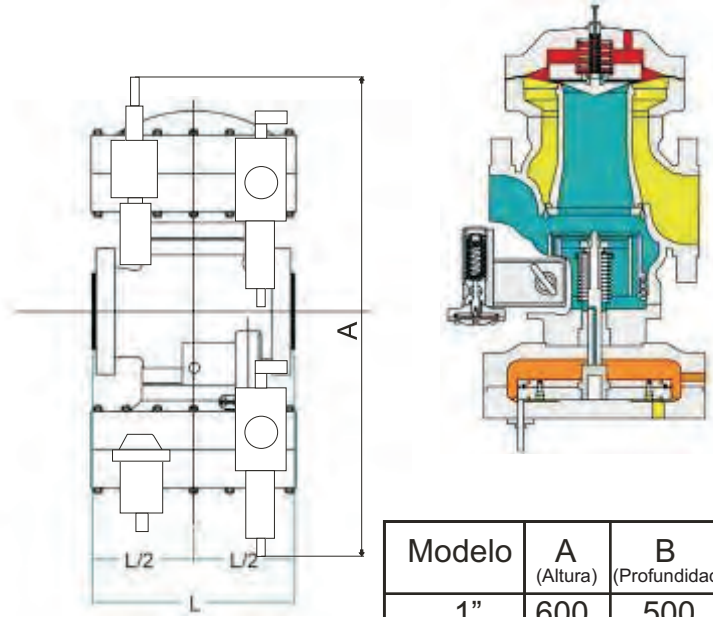
Body: nodular iron (S150).  
 Body: carbon steel ASTM A 216 WCB (S300 / S600).  
 Internal structures: stainless and elastomer.

### Tabla de capacidades | Capacity Chart

ØNominal	1"	2"	3"
CG	580	2300	4700
C1	29	29	29

### Tabla de dimensiones entre caras | Face-to-face dimensi L (mm)

ØNominal	1"	2"	3"
ANSI 150	184	254	298
ANSI 300	197	267	318
ANSI 600	210	286	337



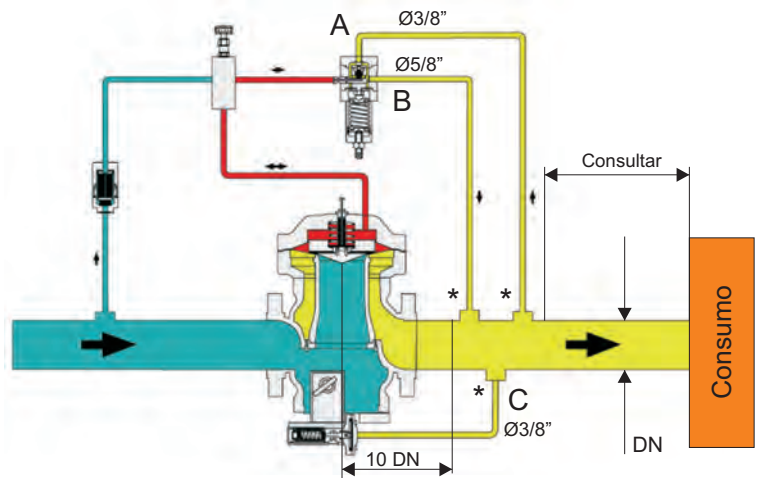
Modelo	A (Altura)	B (Profundidad)
1"	600	500
2"	650	480
3"	680	600

## Esquema de instalación | Installation scheme

Las tomas de presión aguas abajo, deben instalarse independientemente uno de otro, a una distancia de 400 a 600 mm del centro de la válvula.  
 Se deben mantener los diámetros de las cañerías indicados en el esquema.

This connections should be instaled separtely, at a distanca of 400 to 600 mm from the valve center line.  
 Diameters of this tubing must be kept according to this scheme.

- A** Conexión de la parte superior del piloto a la cañería aguas abajo (3/8").  
Diameter 3/8" conection from top of the pilot to downstream pipe.
- B** Conexión de la parte lateral del piloto a la cañería aguas abajo (5/8").  
Diameter 5/8" conection from side of the pilot to downstream pipe.
- C** Conexión desde el plato del bloqueo a la cañería aguas abajo (3/8").  
Diameter 3/8" conection from diaphragm plate of shutoff to downstream pipe.



Tramo de cañería donde deben instalarse las tomas de presión aguas abajo.  
 Pipe section where can be instaled downstream tubings.

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**TABLA DE CAPACIDADES para Gas Natural en Nm<sup>3</sup>/h (d=0,6)  
CAPACITY CHART (Natural Gas) in Nm<sup>3</sup>/h (sp. Gr=0,6)**

	PRESION DE SALIDA (bar)																										
	0.16	0.2	0.3	0.4	0.5	0.7	1	1.5	2	2.5	3	4	5	7	10	15	20	25	30	40	50	60	80				
PRESION DE ENTRADA (bar) 956 - 1" (DN 25)	0.5	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	0.7	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.4	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.75	X	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	2.5	1027	1027	1027	1027	1027	1027	934	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---				
	3	1173	1173	1173	1173	1173	1173	1108	1029	X	X	---	---	---	---	---	---	---	---	---	---	---	---				
	4	1467	1467	1467	1467	1467	1467	1467	1385	1310	X	X	---	---	---	---	---	---	---	---	---	---	---				
	5	1760	1760	1760	1760	1760	1760	1760	1662	1590	1488	1151	---	---	---	---	---	---	---	---	---	---	---				
	7	2347	2347	2347	2347	2347	2347	2347	2347	2347	2347	2216	2058	1798	---	---	---	---	---	---	---	---	---				
	10	3228	3228	3228	3228	3228	3228	3228	3228	3228	3228	3228	3228	2980	2551	---	---	---	---	---	---	---	---				
	15	4695	4695	4695	4695	4695	4695	4695	4695	4695	4695	4695	4695	4695	4432	3888	---	---	---	---	---	---	---				
	20	6163	6163	6163	6163	6163	6163	6163	6163	6163	6163	6163	6163	6163	6163	5733	4636	---	---	---	---	---	---				
	30	9797	9797	9797	9797	9797	9797	9797	9797	9797	9797	9797	9797	9797	9797	8525	7612	5867	---	---	---	---	---				
	40	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	12032	11295	10471	9134	---	---	---	---				
	50	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14967	14066	13291	10449	---	---				
60	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	17902	16836	15058	11623	---					
75	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	22304	20660	18780	15612	---				
100	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	29641	27916	26394	20775	---				
PRESION DE ENTRADA (bar) 956 - 2" (DN 50)	0.5	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	0.7	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.4	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.75	X	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	2.5	4073	4073	4073	4073	4073	4073	3705	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---				
	3	4665	4665	4665	4665	4665	4665	4393	4080	X	X	---	---	---	---	---	---	---	---	---	---	---	---				
	4	5819	5819	5819	5819	5819	5819	5819	5492	5196	X	X	---	---	---	---	---	---	---	---	---	---	---				
	5	6982	6982	6982	6982	6982	6982	6982	6982	6590	6305	5904	4565	---	---	---	---	---	---	---	---	---	---				
	7	9310	9310	9310	9310	9310	9310	9310	9310	9310	8787	8161	7132	---	---	---	---	---	---	---	---	---	---				
	10	12801	12801	12801	12801	12801	12801	12801	12801	12801	12801	12801	11820	10118	---	---	---	---	---	---	---	---	---				
	15	18620	18620	18620	18620	18620	18620	18620	18620	18620	18620	18620	18620	18620	17575	15419	---	---	---	---	---	---	---				
	20	24439	24439	24439	24439	24439	24439	24439	24439	24439	24439	24439	24439	24439	24439	22817	18387	---	---	---	---	---	---				
	30	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	36077	33806	30187	23267	---	---	---	---				
	40	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	47715	44793	41523	36221	---	---				
	50	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	59353	55779	52705	41439	---				
60	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	70991	6764	59713	46094	---				
75	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	88448	81928	74475	61913	---		
100	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	117543	110705	104668	82386	---		
PRESION DE ENTRADA (bar) 956 - 3" (DN 80)	0.5	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	0.7	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.4	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	1.75	X	X	X	X	X	X	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	2.5	8323	8323	8323	8323	8323	8323	7572	X	X	---	---	---	---	---	---	---	---	---	---	---	---	---				
	3	9512	9512	9512	9512	9512	9512	8978	8339	X	X	---	---	---	---	---	---	---	---	---	---	---	---				
	4	11891	11891	11891	11891	11891	11891	11891	11223	10618	X	X	---	---	---	---	---	---	---	---	---	---	---				
	5	14269	14269	14269	14269	14269	14269	14269	14269	13468	12884	12065	9328	---	---	---	---	---	---	---	---	---	---				
	7	19025	19025	19025	19025	19025	19025	19025	19025	19025	19025	17957	16678	14574	---	---	---	---	---	---	---	---	---				
	10	26160	26160	26160	26160	26160	26160	26160	26160	26160	26160	26160	26160	24154	20677	---	---	---	---	---	---	---	---				
	15	38051	38051	38051	38051	38051	38051	38051	38051	38051	38051	38051	38051	38051	38051	35915	31509	---	---	---	---	---	---				
	20	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	49942	46627	37574	---	---	---	---	---				
	30	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	73724	69082	61687	47547	---	---	---				
	40	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	97506	91534	84853	74018	---			
	50	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	121288	113983	107703	84680	---			
60	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	145070	136432	122023	94194	---				
75	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	180743	167418	152189	126518	---	
100	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	240198	226223	213887	168355	---

**Notas:**

- Se recomienda elegir el diámetro teniendo en cuenta que el caudal necesario no debe superar el 85% del indicado en la tabla.
- En presiones de entrada menores a los 5bar, los caudales corresponden a la opción FTC (para opción FTO consultar).

**Note:**

- It is recommended to choose the diameter with capacity 85% less than indicated in this chart.
- For inlet pressure less than 5bar, capacities refers to FTC option (consult for FTO option).