Climate
Control

IMI TA

FLOWRETT, TWORETT, TA-UNI

Thermostatic valves with radiator connection system

Manifolds assemblies for one-pipe and
two-pipe systems

Breakthrough
engineering for
a better world

FLOWRETT, TWORETT, TA-UNI

Manifolds for one-pipe and two-pipe radiator systems delivers balancing and room temperature control functionality. Compatible with most radiators on the market.

Key features

RVT valve (FLOWRETT)
Ensures trouble-free operation and reduced maintenance costs.

Calypso TRV-3 valve (TWORETT)
For accurate balancing, trouble-free operation and better comfort.

Low flow charateristics (TWORETT)
Flow range from a very low flow up to standard level.

Diverter TA-UNI
Convertible for one- or two-pipe application

Bottom or side connection
Ensures smoother installation.

Technical description

Application:
Heating systems

Functions:
Regulating
Presetting
Shut-off

Dimensions:
DN 10

Pressure classe:
PN 10

Max. differential pressure:
The max. pressure difference allowed for the valve not to open against a closed thermostat: 100 kPa.

Temperature:
Max. working temperature: 120°C, with protection cap or actuator 100°C.
Min. working temperature: -10°C.

Material:
Diverters:
Valve body: Hot stamped brass
Valve stem: Brass
O-rings: EPDM rubber

Radiator valves:
Valve body: Brass
O-rings: EPDM rubber
Return spring: Stainless steel
RVT/RVO:
Valve disc: EPDM rubber
Valve insert: Brass. (The complete thermostatic insert can be replaced using the fitting tool without draining the system.)
Spindle: Niro-steel spindle with double O-ring sealing. (The outer O-ring can be replaced under pressure.)
Calypso TRV-3:
Valve disc: NBR rubber
Valve insert: Brass, PPS (polyphenyl-sulphide) and SPS (syndiotactic polystyrene). (The complete thermostatic insert can be replaced using the fitting tool without draining the system.)
Spindle: Niro-steel spindle with double O-ring sealing.

Others:
Connection pipes: Steel
Radiator connections: AMETAL®

AMETAL® is the dezincification resistant alloy of IMI.

Surface treatment:
Nickel-plated

Identification:
The distributors are marked with TA and a flow direction arrow on the valve body.
FLOWRETT:
The **RSD 821** cap without splines.
TWORETT:
The **RSD 802** cap with splines.
TA-UNI:
Cap without splines.

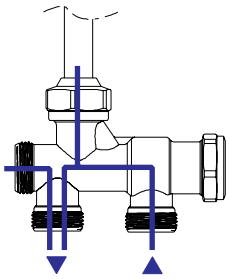
Radiator valves:
All radiator valves are marked with TA, country code, flow direction arrow, DN and KEYMARK-Designation on the valve body.
Calypso TRV-3: Red protection cap.
Upper part of valve insert: Red.
RVT:
Black protection cap. Black stuffing box.
RVO:
White handwheel. Black stuffing box.

Connection to thermostatic head:
M30x1.5

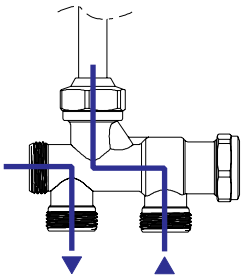
Function

Diverters
FLOWRETT/RSD 821, one-pipe, which can be mounted to suit connection from below or from the side.
TWORETT/RSD 802, two-pipe, which can be mounted to suit connection from below or from the side, with built in shut-off.
TA-UNI, convertible for one- or two-pipe application, which can be mounted to suit connection from below or from the side.

One-pipe



Two-pipe



Radiator valves
Calypso TRV-3: Can be fitted with a thermostat, but is supplied with a red protection cap and KOMBI connection. Using straight valve, the valve body can be arranged parallel or perpendicular to the radiator.
Calypso TRV-3 has stepless presetting and is delivered with presetting of 8, i.e. fully open valve. Presetting tool Article No 3670-01.142. For further information on Calypso TRV-3, see separate leaflet.
RVT, RVO: Thermostat or hand controlled with KOMBI connection.

Connection pipes
Nickel-plated steel. 12 mm external diameter, standard length 1100 mm.
Subtract 80 mm from the radiator c/c distance for a **straight** radiator valve and elbow.
When using the reversed **angle** valve, obtain the distance by subtracting 43 mm from the radiator c/c distance.

Accessories
Radiator connections.
Pipe connections: Steel, copper, Alu/PEX or PEX pipes can be connected to the diverter using IMI TA compression couplings. See catalogue leaflets FPL, FPL-MT and FPL-PX.
Thermostats: See catalogue leaflet TRV 300, TRV Nordic and Halo.
Actuator: See catalogue leaflet EMO T and TA-Slider 160.

Noise

The following conditions must be fulfilled in order to avoid noise in the heating system:
1 Flows correctly balanced.
2 The water in the system must have been de-aerated.
3 Circulation pumps which do not give too high differential pressure.
The maximum recommended pressure drop in order to avoid noise: 30 kPa.

Notes
– To avoid damage and the formation of scale deposit in the hot-water heating system, the composition of the heat transfer medium should be in accordance with the VDI guideline 2035. For industrial and long-distance energy systems, see the applicable codes VdTÜV and 1466/AGFW FW 510. A heat transfer medium containing mineral oils, or any type of lubricant containing mineral oil can have extremely negative effects and usually lead to the disintegration of EPDM seals. When using nitrite-free frost and corrosion resistance solutions with an ethylene glycol base, pay close attention to the details outlined in the manufacturers' documentation, particularly concerning concentration and specific additives.
– Flush the system before changing thermostatic valves in heavy polluted existing systems.
– The thermostatic valve bodies can be used with all IMI Heimeier thermostatic heads and IMI Heimeier or IMI TA thermal actuators or motorized. The optimal tuning of the components guarantees maximum safety. When using actuators from other manufacturers, make sure that the pressure power is appropriate for thermostatic valve bodies with soft sealing valve discs.

Kv values

FLOWRETT with diverter RSD 821
Has a constant Kv value = 1.5. 0-50% of total flow range to the radiator is presettable.

TWORETT with radiator valve Calypso TRV-3
Kvs complete set: 0,513
KvΔT2K complete set: 0,493

Manifold assembly with diverter TA-UNI
One-pipe system Kvs = 1.5
Two-pipe system with radiator valve RVO Kvs = 0.790
Two-pipe system with radiator valve Calypso TRV-3 Kvs = 0.478

Setting

Presetting, FLOWRETT
Preset the FLOWRETT one-pipe manifold directly at the diverter, using a 4 mm Allen key.
The diverter is preset for maximum percentage flow to the radiator when delivered.
Adjust the presetting by screwing in the spindle to the bottom and then unscrewing it the requisite number of turns to provide the required flow through the radiator. The preset value can be noted in the cap of the diverter so that it can be reset afterwards if the radiator is turned off.
Presetting is so designed that the total Kv value of the set does not change when the preset value is altered. This simplifies pressure drop calculation of one-pipe systems and allows each radiator to be correctly adjusted to provide the desired heat output.

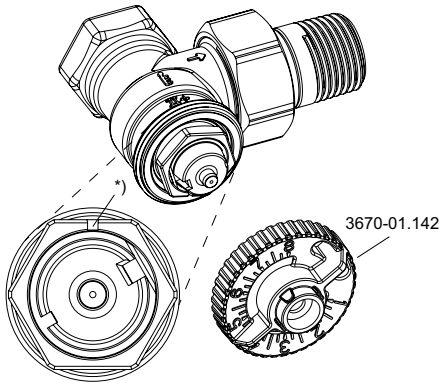
Shut-off:
The RSD 821 (bottom and side connected) can be shut off by screwing in the presetting stem on the distributor fully home, using a 4 mm Allen key. After which the radiator can be removed without having to drain the system.

Presetting, TWORETT
Preset the TWORETT two-pipe manifold fitted with Calypso TRV-3 (presetting tool, Article No 3670-01.142).
The Kv values are given for the entire set. When the unit is set to higher Kv values, there will be a slight difference relative to the Calypso TRV-3. The Kv values will therefore be slightly lower, as the pressure drop in the diverter, connections and pipes are included in the measurement.
IMI's method of balancing heating systems results in uniform temperature distribution and energy saving.

Some important features:
- Recommended pressure drop over the radiator valve, 8-10 kPa.
- Low pressure drop in the piping system.
- Correct flow to the radiator.
- The thermostat is adjusted (i.e. max. flow is restricted) so that it stops the energy supply to the radiator when the room temperature rises by 2K.

Shut-off:
The TWORETT (bottom and side connected) can be shut-off by screwing in the presetting spindle on the diverter fully home, using a 6 mm Allen key. After which the radiator can be removed without having to drain the system.

Setting Calypso TRV-3
The valve has stepless presetting which can be adjusted by the presetting tool (Article No. 3670-01.142).
The valve is delivered fully open valve (presetting 8).
1. Remove the protective cap.
2. Set the required value using the presetting tool.
3. Refit the protective cap alternatively fit the thermostat head.



*) Index

Presetting, TA-UNI
Converting one-/two-pipe:
To convert a valve to a two-pipe arrangement, remove the valve cover and use a 3 mm Allen key to close the inner spindle fully (= turn clockwise).
Screwing the inner spindle fully anti-clockwise will make the valve operate as a one-pipe valve.
This changeover can be carried out with the valve in operation.

Presetting, one-pipe:
The diverter is preset for maximum percentage flow to the radiator when delivered.
Adjust the presetting by screwing in the spindle (using a 4 mm Allen key) to the bottom and then unscrewing it the requisite number of turns to provide the required flow through the radiator. The preset value can be noted in the cap of the diverter so that it can be reset afterwards if the radiator is turned off.
Presetting is so designed that the total Kv value of the set does not change when the preset value is altered. This simplifies pressure drop calculation of one-pipe systems and allows each radiator to be correctly adjusted to provide the desired heat output.

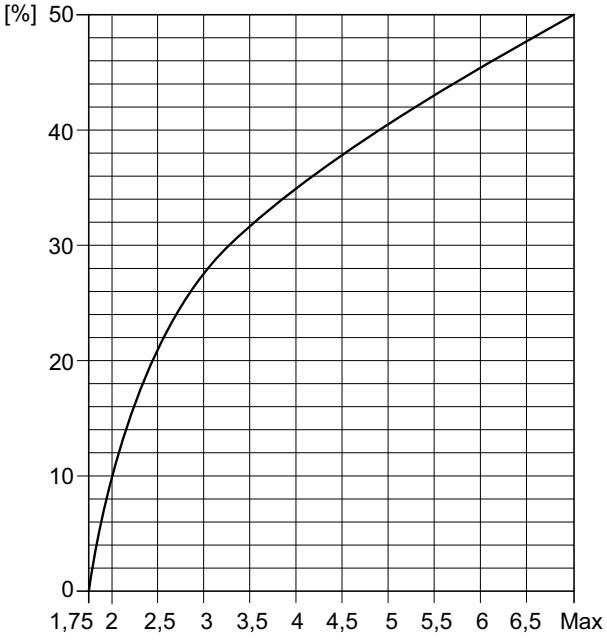
Presetting, two-pipe:
Presetting is carried out at the valve. To do this right, see the valve in question.

Shut-off:
The TA-UNI (bottom and side connected) can be shut off by screwing in the presetting spindle on the diverter fully home, using a 4 mm Allen key. After which the radiator can be removed without having to drain the system.

Tool for shut-off, converting and presetting:
Inner spindle: Allen key 3 mm
Outer spindle: Allen key 4 mm.

Diagram FLOWRETT/RSD 821 with radiator valve RVT/RVO, one-pipe

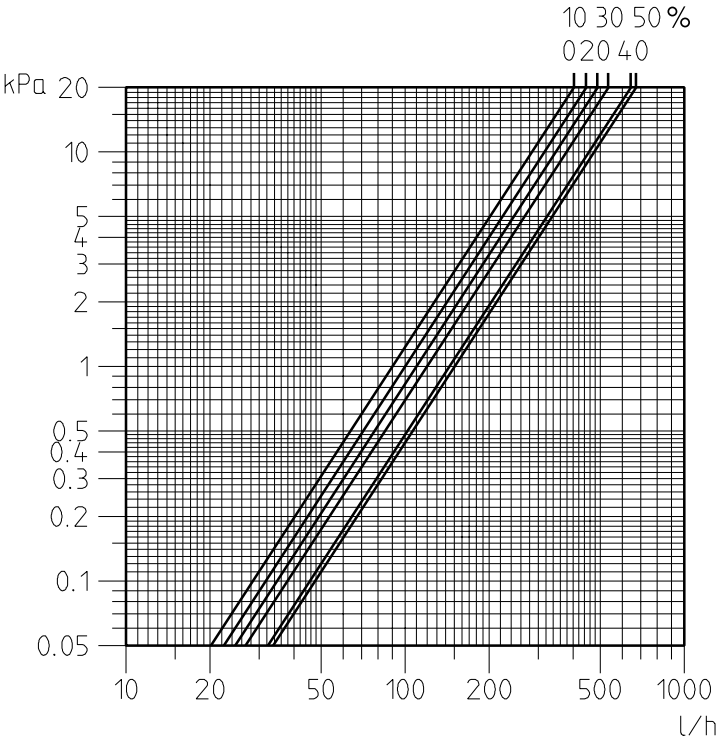
Proportion of loop flow to radiator



Opening turns

Diagram TA-UNI with radiator valve RVT/RVO, hand controlled, one-pipe

Delivery setting 50% to radiator.
On/off regulation with EMO T.

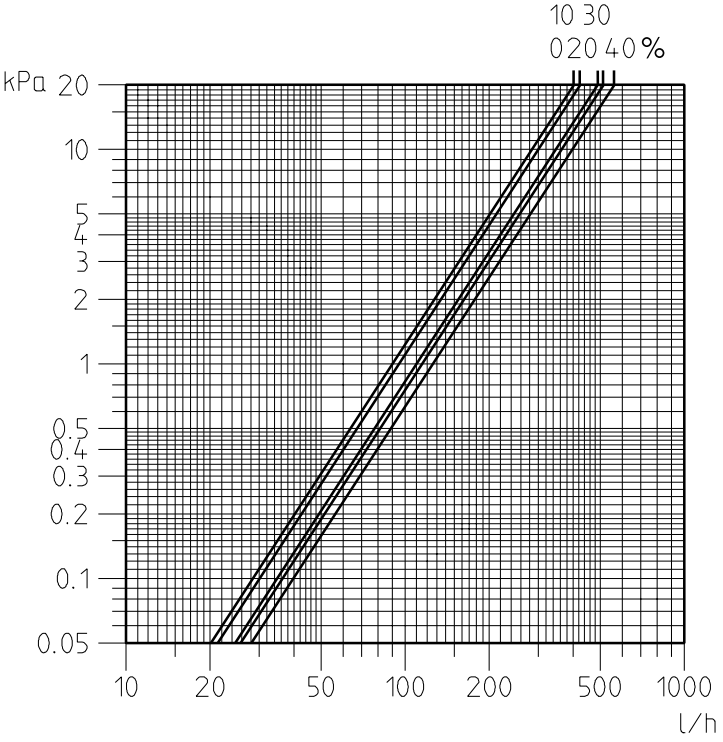


% flow to radiator	0	10	20	30	40	50
Kv	0,9	1,0	1,1	1,2	1,45	1,5
No of turns	**	2	2,75	3,25	5,25	

*) Fully open
**) Closed

Diagram TA-UNI with radiator valve RVT, thermostatic controlled, one-pipe

Delivery setting 40% to radiator

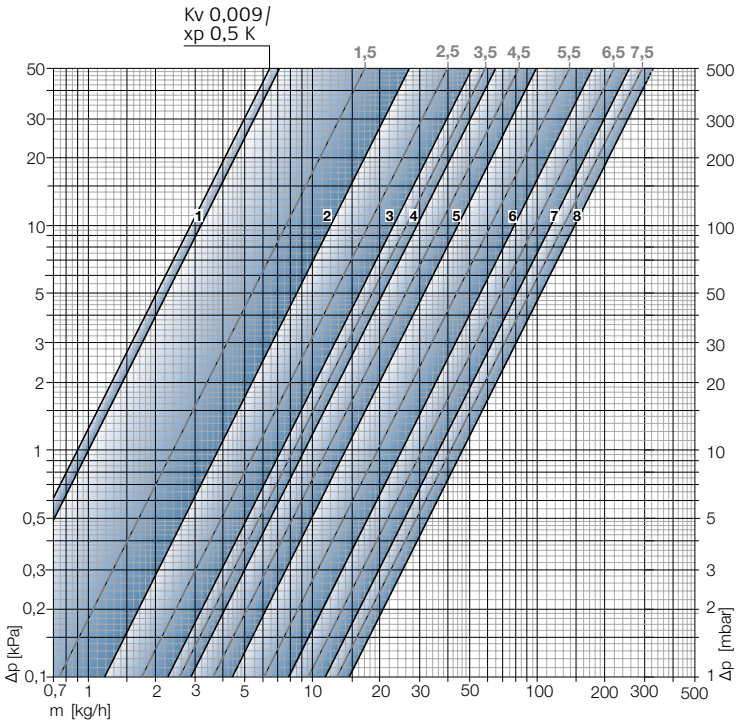


% flow to radiator	0	10	20	30	40
KvΔT2K	0,9	0,95	1,1	1,15	1,25
No of truns	**	2	2,75	3,5	

*) Fully open
**) Closed

Diagram TA-UNI with radiator valve Calypso TRV-3, two-pipe

3-146 l/h (at 10 kPa)



Presetting value	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8
KvΔT2K**	0,010	0,024	0,038	0,056	0,073	0,083	0,092	0,116	0,140	0,197	0,251	0,308	0,363	0,414	0,461
l/h at 10 kPa	3	8	12	18	23	26	29	37	44	62	79	97	115	131	146
Kv, fully open valve disc***	0,010	0,024	0,038	0,056	0,073	0,083	0,092	0,116	0,141	0,219	0,253	0,326	0,370	0,437	0,478

*) Fully open valve.
**) The values are valid when used together with thermostic head K or DX.
***) The values are valid for on/off regulation with, for example, thermo actuator EMO T.

Diagram TA-UNI with radiator valve RVO, two-pipe

Kv 0,79 fully open.

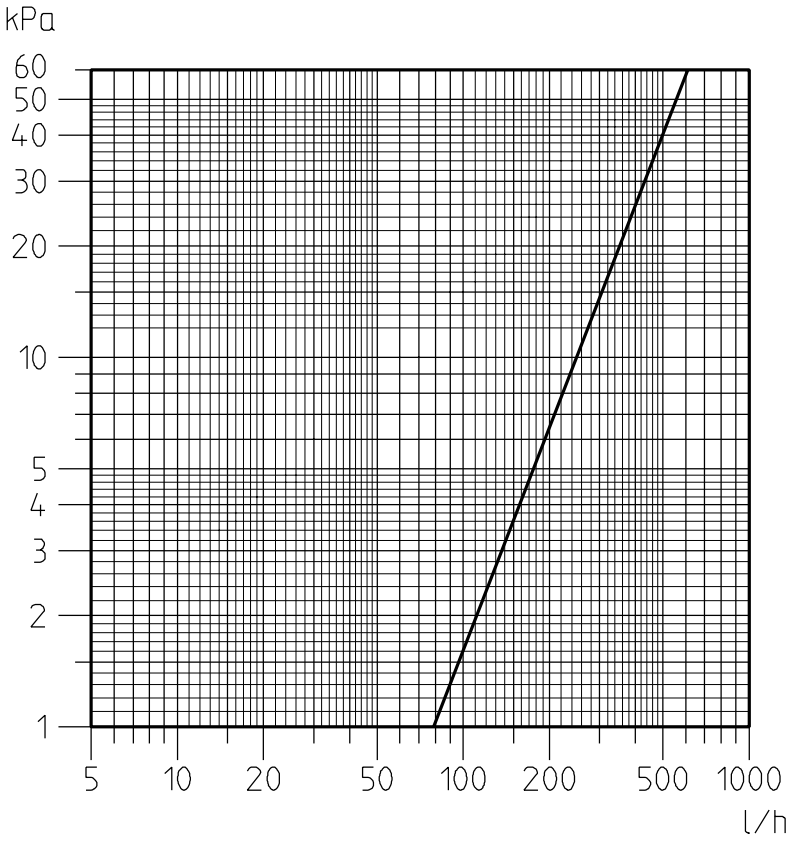
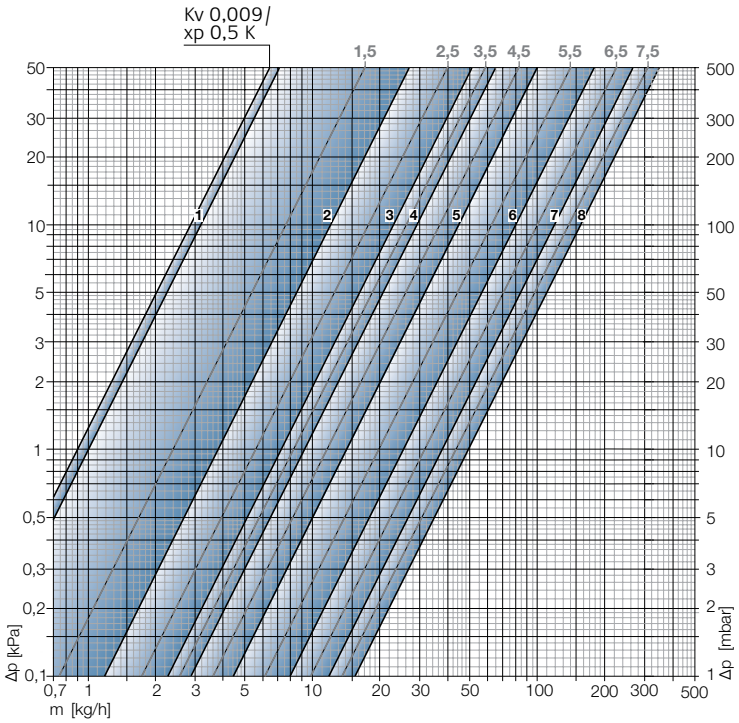


Diagram TWORETT with radiator valve Calypso TRV-3, two-pipe

3-156 l/h (at 10 kPa)



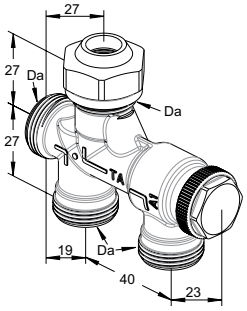
Presetting value	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8
KvΔT2K**	0,010	0,024	0,038	0,056	0,073	0,083	0,092	0,117	0,141	0,199	0,255	0,317	0,377	0,436	0,493
l/h at 10 kPa	3	8	12	18	23	26	29	37	45	63	81	100	119	138	156
Kv, fully open valve disc***	0,010	0,024	0,038	0,056	0,073	0,083	0,092	0,117	0,141	0,222	0,257	0,337	0,385	0,463	0,513

*) Fully open valve.
**) The values are valid when used together with thermostic head K or DX.
***) The values are valid for on/off regulation with, for example, thermo actuator EMO T.

Ordering

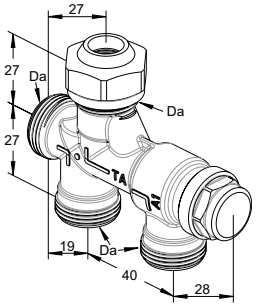
Complete manifold assembly is ordered by required diverter, valve, connection pipe, if any elbow and radiator connections.

Diverter



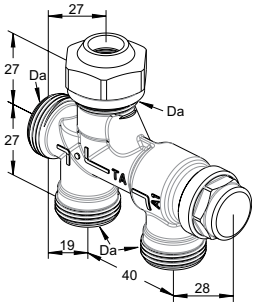
TWORETT/RSD 802

	DN	Da	Kvs*	EAN	Article No
2-pipe	10	M22x1,5	1,54	7318792694400	50 802-100



FLOWRETT/RSD 821

	DN	Da	Kvs*	EAN	Article No
1-pipe	10	M22x1,5	1,5	7318792693700	50 801-100

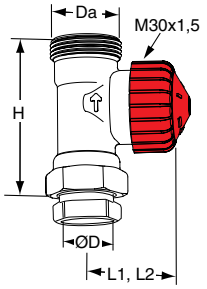


TA-UNI
Convertable 1-pipe/-2-pipe

	DN	Da	Kvs*	EAN	Article No
1-pipe	10	M22x1,5	1,5	7318792642807	50 600-100
2-pipe			1,0		

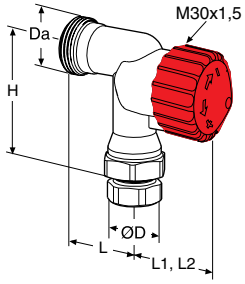
*) Whole manifold assembly.
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

Valves with presetting



Calypso TRV-3 Straight
Thermostatic controlled

DN	D	Da	L1	L2**	H	KvΔT2K	EAN	Article No
10	12	M22x1,5	22,5	110	50	0,010-0,520	4024052947010	50 820-012

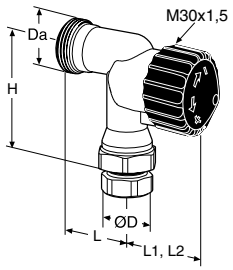


Calypso TRV-3 Reversed angle
Thermostatic controlled

DN	D	Da	L	L1	L2**	H	KvΔT2K	EAN	Article No
10	12	M22x1,5	27	37	125	46,5	0,010-0,520	4024052946914	50 824-012

**) Valve with fitted thermostatic head K.
KvΔT2K = The values are valid when used together with thermostic head K (without diverter).

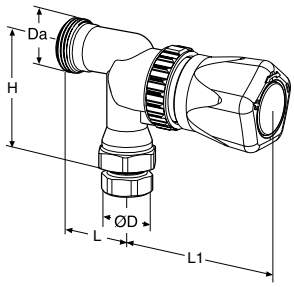
Valves without presetting



RVT Angle
Thermostatic controlled (not suitable for two-pipe system)

DN	D	Da	L	L1	L2**	H	KvΔT2K	Kvs	EAN	Article No
10	12	M22x1,5	27	37	125	46,5	0,65	1,00	7318794030404	50 520-312

**) Valve with fitted thermostatic head TRV 300.



RVO Angle
Hand controlled

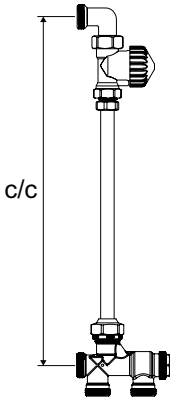
DN	D	Da	L	L1	H	Kvs	EAN	Article No
10	12	M22x1,5	27	68,5	46,5	1,00	7318794030503	50 610-312

KvΔT2K = The values are valid when used together with thermostic head K (without diverter).
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

Connection pipe

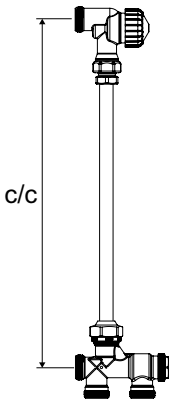
Pipe – standard length

L	ØD	EAN	Article No
1100	12	7318793923103	50 630-001



Cut lengths for straight valve

c/c	EAN	Article No *
145	7318793912503	50 630-064
149-150	7318793912701	50 630-069
240	7318793914408	50 630-160
248-250	7318793914705	50 630-168
340	7318793915900	50 630-260
348-350	7318793916105	50 630-268
385-387	7318793916709	50 630-305
398-400	7318793917003	50 630-318
440	7318793917409	50 630-360
446	7318793917607	50 630-365
448-450	7318793917706	50 630-368
485	7318793918307	50 630-405
505	7318793945709	50 630-425
540	7318793919106	50 630-460
546	7318793919304	50 630-465
548-550	7318793919403	50 630-468
600	7318793920201	50 630-520
845-846	7318793921505	50 630-765

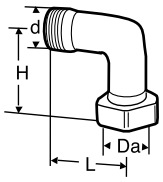


Cut lengths for reversed angle valve

c/c	EAN	Article No *
245-246	7318793915306	50 630-202
248-250	7318793915504	50 630-205
345-346	7318793916501	50 630-302
348-350	7318793916709	50 630-305
355	7318793916907	50 630-312
446	7318793918109	50 630-402
448-450	7318793918307	50 630-405
546	7318793919700	50 630-502
548-550	7318793919908	50 630-505

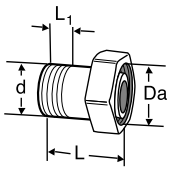
*) The last three digits of the article number represents to the pipe length, e.g. 50 630-305 = 305 mm.

Radiator connections



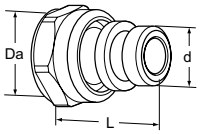
Elbow

d	Da	L	H	EAN	Article No
M22x1,5	M22x1,5	27	26,5	7318792689802	50 702-510



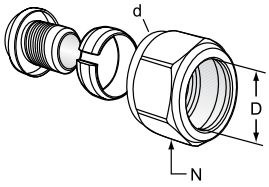
Straight

d	Da	L	L1	EAN	Article No
R3/8	M22x1,5	25	8	7318792687402	50 701-510
R1/2	M22x1,5	25	10	7318792687600	50 701-516



Straight with O-ring

d	Da	L	EAN	Article No
G1/2	M22x1,5	33	7318793825803	50 707-616



Connection set FPL-MT with O-ring
For ALU/PEX pipe.

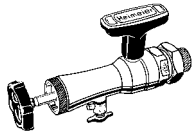
d	L[1]	For MT-pipe D	N	EAN	Article No
M22x1,5	14	16x2,0 *	25	7318792963100	53 693-116

1) Over all length.
*) Support bush made of brass CW724R.

Accessories

Setting key
For V-exact II **from 2012**, Calypso exact, Calypso TRV-3 and Vekolux.
Color grey.

	EAN	Article No
	4024052035823	3670-01.142



Fitting tool
complete with case, box spanner and replacement seals, for replacing thermostatic inserts without draining off the heating system (for DN 10 to DN 20).

	EAN	Article No
Fitting tool	4024052298914	9721-00.000

Thermostatic heads - see catalogue leaflets K, DX and Halo.
Thermoelectric actuators - see catalogue leaflets EMO T and TA-Slider 160.
Other accessories - see catalogue leaflet ACCESSORIES AND SPARE PARTS.
Couplings - see catalogue leaflets FPL, FPL-MT and FPL-PX.

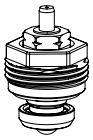
Spare parts

Valve insert
Calypso TRV-3
Can be replaced during operation.

EAN	Article No
4024052973316	3670-00.300

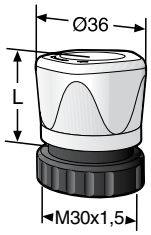
Special insert Calypso TRV-3 for inverse direction of flow with reversed supply and return pipes
NOTE: Presetting and values according to thermostatic valve body V-exact II, see www.imi-hydronic.com.
Can be replaced during operation.

EAN	Article No
4024052951611	3700-24.300



Valve insert
RVT, RVO
Can be replaced during operation.

EAN	Article No
4024052132614	1302-02.300

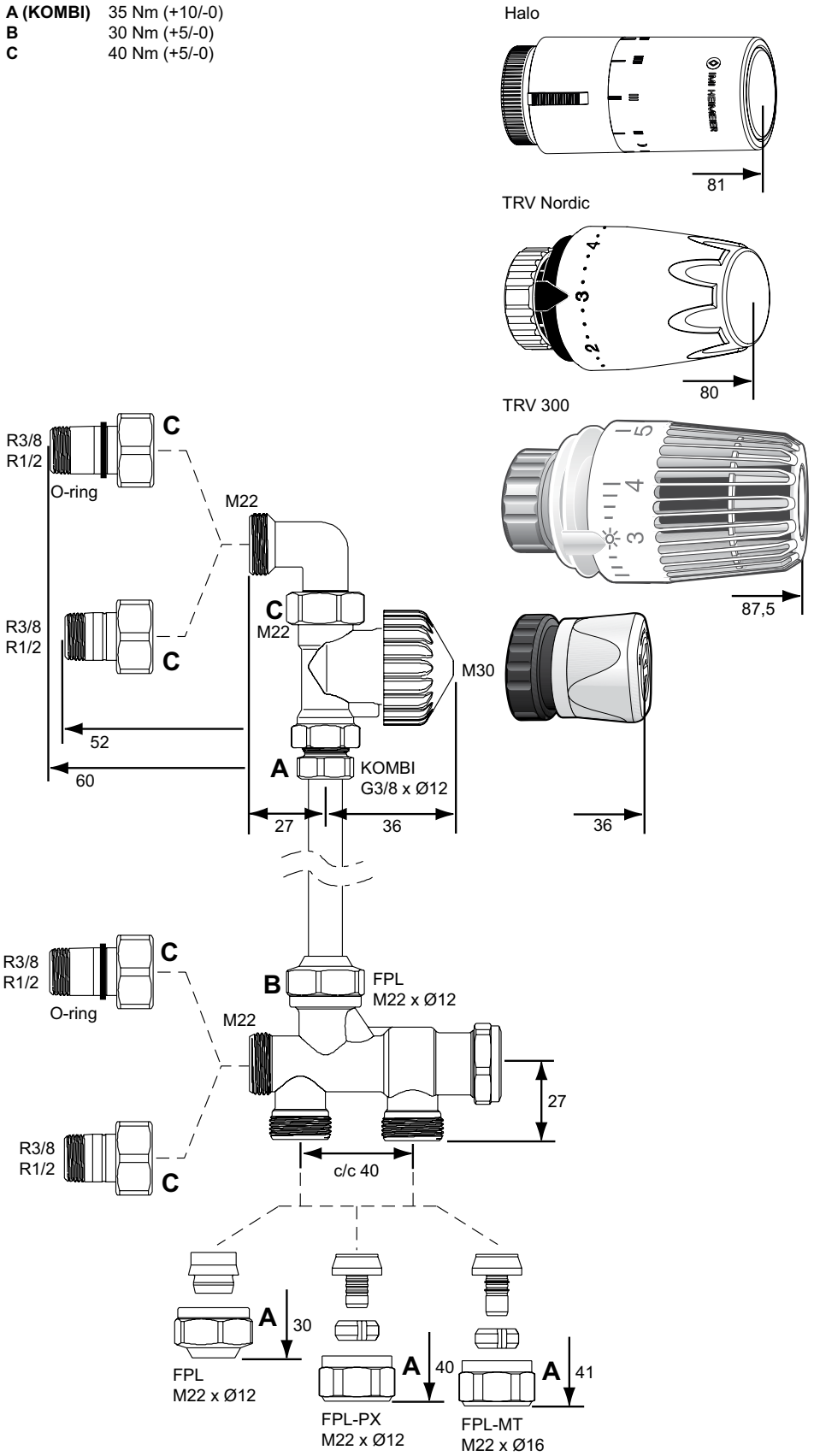


Handwheel

L	EAN	Article No
36	4024052323494	1303-01.325

Dimensions

A (KOMBI)	35 Nm (+10/-0)
B	30 Nm (+5/-0)
C	40 Nm (+5/-0)



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