

# Thermo™ - Expansion Valves series TIH for OEM use, hermetic design

## Features

- Compact size and hermetic design
- Up to 35 kW for R410A, 49 kW for R32
- Brazing and metric connections with straight through configuration
- Stainless steel power element resists corrosion
- Large diaphragm provides smoother and consistent valve control
- Internal or external equalizer
- External superheat adjustment
- Standard with integrated 100 mesh size strainer at inlet of valve
- Packaging with 20 pieces necked including bulb fastening accessories and single operating instruction



## Options

- Single engineering sample for test purpose
- Special setting or bleed hole function on request: minimum order quantity 100 pieces per batch, type and order
- Valve without internal strainer on request: minimum order quantity 100 pieces per batch, type and order

## Selection table R32 / R410A / R452B / R454B

Nominal Capacity (kW)				with MOP		Connection		
R410A	R32*	R452B*	R454B*	Type	Part No.	Inlet	Outlet	Equalizer
3.6	5.4	4.1	4.2	TIH-Z12m	802622M	6 mm	10 mm	internal
3.6	5.4	4.1	4.2	TIH-Z12	802636M	1/4"	3/8"	internal
6.0	9.0	6.9	6.9	TIH-Z13m	802623M	6 mm	10 mm	internal
6.0	9.0	6.9	6.9	TIH-Z13	802637M	1/4"	3/8"	internal
8.4	12.5	9.6	9.7	TIH-Z14m	802624M	10 mm	12 mm	internal
8.4	12.5	9.6	9.7	TIH-Z14	802638M	3/8"	1/2"	internal
3.6	5.4	4.1	4.2	TIH-Z32m	802625M	6 mm	10 mm	6 mm
3.6	5.4	4.1	4.2	TIH-Z32	802639M	1/4"	3/8"	1/4"
6.0	9.0	6.9	6.9	TIH-Z33m	802626M	6 mm	10 mm	6 mm
6.0	9.0	6.9	6.9	TIH-Z33	802640M	1/4"	3/8"	1/4"
8.4	12.5	9.6	9.7	TIH-Z34m	802627M	10 mm	12 mm	6 mm
8.4	12.5	9.6	9.7	TIH-Z34	802641M	3/8"	1/2"	1/4"
12.4	18.4	14.2	14.2	TIH-Z35m	802628M	10 mm	12 mm	6 mm
12.4	18.4	14.2	14.2	TIH-Z35	802642M	3/8"	1/2"	1/4"
14.6	21.8	16.7	16.8	TIH-Z36m	802629M	10 mm	12 mm	6 mm
14.6	21.8	16.7	16.8	TIH-Z36	802643M	3/8"	1/2"	1/4"
20.8	31.0	23.8	23.9	TIH-Z37m	802630M	12 mm	16 mm	6 mm
20.8	31.0	23.8	23.9	TIH-Z37	802644M	1/2"	5/8"	1/4"
23.2	34.6	26.6	26.7	TIH-Z38m	802631M	12 mm	16 mm	6 mm
23.2	34.6	26.6	26.7	TIH-Z38	802645M	1/2"	5/8"	1/4"
26.7	39.7	30.5	30.7	TIH-Z39m	802632M	12 mm	16 mm	6 mm
26.7	39.7	30.5	30.7	TIH-Z39	802646M	1/2"	5/8"	1/4"
33.2	49.4	38.0	38.2	TIH-Z3Am	802633M	12 mm	16 mm	6 mm
33.2	49.4	38.0	38.2	TIH-Z3A	802647M	1/2"	5/8"	1/4"

**Note 1:** Nominal conditions: Evaporating Temperature +4°C (dew point), Condensing Temperature +38°C (bubble point), Subcooling 1 K

**Note 2:** \*) Superheat readjustment required - see Operating Instruction

## Selection table R134a / R450A

Capacity (kW)		without MOP		with MOP		Connection		
R134a	R450A*	Type	Part No.	Type	Part No.	Inlet	Outlet	Equalizer
2.4	2.1	TIH-M02m	802510M	TIH-M12m	802538M	6 mm	10 mm	internal
2.4	2.1	TIH-M02	802524M	TIH-M12	802552M	1/4"	3/8"	internal
4.0	3.5	TIH-M03m	802511M	TIH-M13m	802539M	6 mm	10 mm	internal
4.0	3.5	TIH-M03	802525M	TIH-M13	802553M	1/4"	3/8"	internal
5.6	4.9	TIH-M04m	802512M	TIH-M14m	802540M	10 mm	12 mm	internal
5.6	4.9	TIH-M04	802526M	TIH-M14	802554M	3/8"	1/2"	internal
2.4	2.1	TIH-M22m	802513M	TIH-M32m	802541M	6 mm	10 mm	6 mm
2.4	2.1	TIH-M22	802527M	TIH-M32	802555M	1/4"	3/8"	1/4"
4.0	3.5	TIH-M23m	802514M	TIH-M33m	802542M	6 mm	10 mm	6 mm
4.0	3.5	TIH-M23	802528M	TIH-M33	802556M	1/4"	3/8"	1/4"
5.6	4.9	TIH-M24m	802515M	TIH-M34m	802543M	10 mm	12 mm	6 mm
5.6	4.9	TIH-M24	802529M	TIH-M34	802557M	3/8"	1/2"	1/4"
8.2	7.2	TIH-M25m	802516M	TIH-M35m	802544M	10 mm	12 mm	6 mm
8.2	7.2	TIH-M25	802530M	TIH-M35	802558M	3/8"	1/2"	1/4"
9.7	8.5	TIH-M26m	802517M	TIH-M36m	802545M	10 mm	12 mm	6 mm
9.7	8.5	TIH-M26	802531M	TIH-M36	802559M	3/8"	1/2"	1/4"
13.8	12.2	TIH-M27m	802518M	TIH-M37m	802546M	12 mm	16 mm	6 mm
13.8	12.2	TIH-M27	802532M	TIH-M37	802560M	1/2"	5/8"	1/4"
15.4	13.6	TIH-M28m	802519M	TIH-M38m	802547M	12 mm	16 mm	6 mm
15.4	13.6	TIH-M28	802533M	TIH-M38	802561M	1/2"	5/8"	1/4"
17.7	15.6	TIH-M39m	802520M	TIH-M39m	802548M	12 mm	16 mm	6 mm
17.7	15.6	TIH-M29	802534M	TIH-M39	802562M	1/2"	5/8"	1/4"
22.0	19.4	TIH-M3Am	802521M	TIH-M3Am	802549M	12 mm	16 mm	6 mm
22.0	19.4	TIH-M2A	802535M	TIH-M3A	802563M	1/2"	5/8"	1/4"

**Note 1:** Nominal conditions: Evaporating Temperature +4°C (dew point), Condensing Temperature +38°C (bubble point), Subcooling 1 K

**Note 2:** \*) Superheat readjustment required - see Operating Instruction

## Selection table R407C / R454C

Capacity (kW)		without MOP		with MOP		Connection		
R407C	R454C*	Type	Part No.	Type	Part No.	Inlet	Outlet	Equalizer
3.3	2.5	TIH-N02m	802566M	TIH-N12m	802594M	6 mm	10 mm	internal
3.3	2.5	TIH-N02	802580M	TIH-N12	802608M	1/4"	3/8"	internal
5.4	4.2	TIH-N03m	802567M	TIH-N13m	802595M	6 mm	10 mm	internal
5.4	4.2	TIH-N03	802581M	TIH-N13	802609M	1/4"	3/8"	internal
7.6	5.9	TIH-N04m	802568M	TIH-N14m	802596M	10 mm	12 mm	internal
7.6	5.9	TIH-N04	802582M	TIH-N14	802610M	3/8"	1/2"	internal
3.3	2.5	TIH-N22m	802569M	TIH-N32m	802597M	6 mm	10 mm	6 mm
3.3	2.5	TIH-N22	802583M	TIH-N32	802611M	1/4"	3/8"	1/4"
5.4	4.2	TIH-N23m	802570M	TIH-N33m	802598M	6 mm	10 mm	6 mm
5.4	4.2	TIH-N23	802584M	TIH-N33	802612M	1/4"	3/8"	1/4"
7.6	5.9	TIH-N24m	802571M	TIH-N34m	802599M	10 mm	12 mm	6 mm
7.6	5.9	TIH-N24	802585M	TIH-N34	802613M	3/8"	1/2"	1/4"
11.2	8.7	TIH-N25m	802572M	TIH-N35m	802600M	10 mm	12 mm	6 mm
11.2	8.7	TIH-N25	802586M	TIH-N35	802614M	3/8"	1/2"	1/4"
13.2	10.3	TIH-N26m	802573M	TIH-N36m	802601M	10 mm	12 mm	6 mm
13.2	10.3	TIH-N26	802587M	TIH-N36	802615M	3/8"	1/2"	1/4"
18.8	14.6	TIH-N27m	802574M	TIH-N37m	802602M	12 mm	16 mm	6 mm
18.8	14.6	TIH-N27	802588M	TIH-N37	802616M	1/2"	5/8"	1/4"
21.0	16.3	TIH-N28m	802575M	TIH-N38m	802603M	12 mm	16 mm	6 mm
21.0	16.3	TIH-N28	802589M	TIH-N38	802617M	1/2"	5/8"	1/4"
24.1	18.7	TIH-N29m	802576M	TIH-N39m	802604M	12 mm	16 mm	6 mm
24.1	18.7	TIH-N29	802590M	TIH-N39	802618M	1/2"	5/8"	1/4"
30.0	23.3	TIH-N2Am	802577M	TIH-N3Am	802605M	12 mm	16 mm	6 mm
30.0	23.3	TIH-N2A	802591M	TIH-N3A	802619M	1/2"	5/8"	1/4"

**Note 1:** Nominal conditions: Evaporating Temperature +4°C (dew point), Condensing Temperature +38°C (bubble point), Subcooling 1 K

**Note 2:** \*) Superheat readjustment required - see Operating Instruction

## Selection table R448A / R449A / R454A / R455A

Capacity (kW)				without MOP		Connection		
R448A	R449A	R454A*	R455A*	Type	Part No.	Inlet	Outlet	Equalizer
3.1	3.0	3.0	2.9	TIH-B02m	802706M	6 mm	10 mm	internal
3.1	3.0	3.0	2.9	TIH-B02	802720M	1/4"	3/8"	internal
5.1	5.0	5.1	4.9	TIH-B03m	802707M	6 mm	10 mm	internal
5.1	5.0	5.1	4.9	TIH-B03	802721M	1/4"	3/8"	internal
7.2	7.0	7.1	6.8	TIH-B04m	802708M	10 mm	12 mm	internal
7.2	7.0	7.1	6.8	TIH-B04	802722M	3/8"	1/2"	internal
3.1	3.0	3.0	2.9	TIH-B22m	802709M	6 mm	10 mm	6 mm
3.1	3.0	3.0	2.9	TIH-B22	802723M	1/4"	3/8"	1/4"
5.1	5.0	5.1	4.9	TIH-B23m	802710M	6 mm	10 mm	6 mm
5.1	5.0	5.1	4.9	TIH-B23	802724M	1/4"	3/8"	1/4"
7.2	7.0	7.1	6.8	TIH-B24m	802711M	10 mm	12 mm	6 mm
7.2	7.0	7.1	6.8	TIH-B24	802725M	3/8"	1/2"	1/4"
10.6	10.3	10.4	10.1	TIH-B25m	802712M	10 mm	12 mm	6 mm
10.6	10.3	10.4	10.1	TIH-B25	802726M	3/8"	1/2"	1/4"
12.5	12.2	12.3	11.9	TIH-B26 mm	802713M	10 mm	12 mm	6 mm
12.5	12.2	12.3	11.9	TIH-B26	802727M	3/8"	1/2"	1/4"
17.8	17.4	17.5	16.9	TIH-B27m	802714M	12 mm	16 mm	6 mm
17.8	17.4	17.5	16.9	TIH-B27	802728M	1/2"	5/8"	1/4"
19.9	19.4	19.6	18.9	TIH-B28m	802715M	12 mm	16 mm	6 mm
19.9	19.4	19.6	18.9	TIH-B28	802729M	1/2"	5/8"	1/4"
22.8	22.3	22.5	21.6	TIH-B29m	802716M	12 mm	16 mm	6 mm
22.8	22.3	22.5	21.6	TIH-B29	802730M	1/2"	5/8"	1/4"
28.4	27.7	28.0	27.0	TIH-B2Am	802717M	12 mm	16 mm	6 mm
28.4	27.7	28.0	27.0	TIH-B2A	802731M	1/2"	5/8"	1/4"

**Note 1:** Nominal conditions: Evaporating Temperature +4°C (dew point), Condensing Temperature +38°C (bubble point), Subcooling 1 K

**Note 2:** \*) Superheat readjustment required - see Operating Instruction

## Selection table R513A / R1234yf

Capacity (kW)		without MOP		with MOP		Connection		
R513A	R1234yf*	Type	Part No.	Type	Part No.	Inlet	Outlet	Equalizer
2.2	1.7	TIH-C02m	808400M	TIH-C12m	808428M	6 mm	10 mm	internal
2.2	1.7	TIH-C02	808414M	TIH-C12	808442M	1/4"	3/8"	internal
3.6	2.9	TIH-C03m	808401M	TIH-C13m	808429M	6 mm	10 mm	internal
3.6	2.9	TIH-C03	808415M	TIH-C13	808443M	1/4"	3/8"	internal
5.0	4.0	TIH-C04m	808402M	TIH-C14m	808430M	10 mm	12 mm	internal
5.0	4.0	TIH-C04	808416M	TIH-C14	808444M	3/8"	1/2"	internal
2.2	1.7	TIH-C22m	808403M	TIH-C32m	808431M	6 mm	10 mm	6 mm
2.2	1.7	TIH-C22	808417M	TIH-C32	808445M	1/4"	3/8"	1/4"
3.6	2.9	TIH-C23m	808404M	TIH-C33m	808432M	6 mm	10 mm	6 mm
3.6	2.9	TIH-C23	808418M	TIH-C33	808446M	1/4"	3/8"	1/4"
5.0	4.0	TIH-C24m	808405M	TIH-C34m	808433M	10 mm	12 mm	6 mm
5.0	4.0	TIH-C24	808419M	TIH-C34	808447M	3/8"	1/2"	1/4"
7.4	5.9	TIH-C25m	808406M	TIH-C35m	808434M	10 mm	12 mm	6 mm
7.4	5.9	TIH-C25	808420M	TIH-C35	808448M	3/8"	1/2"	1/4"
8.8	7.0	TIH-C26m	808407M	TIH-C36m	808435M	10 mm	12 mm	6 mm
8.8	7.0	TIH-C26	808421M	TIH-C36	808449M	3/8"	1/2"	1/4"
12.5	10.0	TIH-C27m	808408M	TIH-C37m	808436M	12 mm	16 mm	6 mm
12.5	10.0	TIH-C27	808422M	TIH-C37	808450M	1/2"	5/8"	1/4"
13.9	11.1	TIH-C28m	808409M	TIH-C38m	808437M	12 mm	16 mm	6 mm
13.9	11.1	TIH-C28	808423M	TIH-C38	808451M	1/2"	5/8"	1/4"
16.0	12.7	TIH-C29m	808410M	TIH-C39m	808438M	12 mm	16 mm	6 mm
16.0	12.7	TIH-C29	808424M	TIH-C39	808452M	1/2"	5/8"	1/4"
19.9	15.9	TIH-C2Am	808411M	TIH-C3Am	808439M	12 mm	16 mm	6 mm
19.9	15.9	TIH-C2A	808425M	TIH-C3A	808453M	1/2"	5/8"	1/4"

**Note 1:** Nominal conditions: Evaporating Temperature +4°C (dew point), Condensing Temperature +38°C (bubble point), Subcooling 1 K

**Note 2:** \*) Superheat readjustment required - see Operating Instruction

## Standard MOPs

Refrigerant	Standard MOP	Corresponding Temperature	Recommended Max. Design Evaporating Temperature
R134a	3.8 bar	+16°C	+12°C
R513A	3.8 bar	+14°C	+10°C
R407C	6.9 bar	+14.5°C	+12.5°C
R410A	13.4 bar	+20°C	+18°C
R32	13.4 bar	+20°C	+18°C
R452B	13.4 bar	+22°C	+20°C
R454B	13.4 bar	+22°C	+20°C

Charge	MOP	Refrigerant	Maximum Bulb Temperature
TIH-M0../M2..	-	R134a	+100°C
TIH-N0../N2..	-	R407C	+80°C
TIH-B0../B2..	-	R448A, R449A	+80°C
TIH-C0../C2..	-	R513A	+100°C
TIH-M1../M3..	3.8 bar	R134a	+120°C
TIH-C1../C3..	3.8 bar	R513A	+120°C
TIH-N1../N3..	6.9 bar	R407C	+120°C
TIH-Z1../Z3..	12.1 bar	R410A	+120°C