TIMKEN

TIMKEN® MAINTENANCE TOOLS SOLUTIONS

ENSURING PERFORMANCE THROUGH PROPER INSTALLATION AND REMOVAL OF BEARINGS

INSTALLATION TOOLS

Timken offers a large assortment of high-quality induction heaters designed for demanding industrial applications. They can heat and radially expand a wide variety of gears, rings, couplings, bearings and other components. All heaters are produced in accordance with International (IEC) and European (CE) health and safety requirements. They feature a microprocessor controlled power supply, automated time and temperature control and automatic demagnetization.

⚠ WARNING

Failure to observe the following warnings could create a risk of death or serious injury.

Proper maintenance and handling practices are critical.

Failure to follow user manual can result in equipment failure, creating a risk of serious bodily harm.

DO NOT WEAR METAL OBJECTS OR WATCHES.

PROHIBITED FOR PEOPLE WITH A PACEMAKER AND/OR HEARING AID.

READ THE INSTRUCTIONS.

USE HEAT PROTECTIVE GLOVES.

⚠ CAUTION

Failure to observe the following cautions could create a risk of injury.

Do not operate an induction heater in areas where there is a risk of an explosion.

See inside text for additional warnings.

INDUCTION HEATERS

Why Choose an Induction Heater?

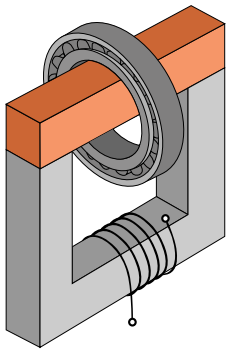
Induction heating is a superior, fast and controlled heating method. It is a safer and more environmentally friendly alternative to traditional heating methods such as ovens, oil baths or blow torches. These methods cause fumes or oil waste and are not recommended for personal health and safety.

Timken induction heaters use the principle of induction, similar to a transformer. The heater and yokes remain cool; only the work piece is heated. During the induction heating cycle, a certain degree of magnetism occurs. All Timken heaters demagnetize automatically after each heating cycle.

Versatility, Safety and Quality

Timken induction heaters can be used for heating gear wheels, bushings, couplings and other components. Proper mounting may lengthen the life span of your equipment, and controlled induction heating helps to prevent unnecessary damage.

Digital electronics provide optimum control during the heating process and automatically select the most efficient power supply to help ensure balanced and fast heating.



High-quality induction heaters designed for demanding industrial applications.

VHIN 10

Portable design, easy to use and ideal for site jobs.

Heating capacity, 15 kg (33.1 lbs.)
(Max. Bearing Weight)
Voltages available:
120V and 230V

Min. Bore: 10 mm (0.4 in.)
Max. O.D.: 210 mm (8.3 in.)
Max. Width: 120 mm (4.8 in.)
Max. Weight: 15 kg (33.1 lbs.)

VHIN 33

Bench-top TURBO model

Heating Capacity, 40 kg (88.2 lbs.)
(Max. Bearing Weight)
Voltages available:
120V and 230V

Min. Bore: 10 mm (0.4 in.)
Max. O.D.: 350 mm (13.8 in.)
Max. Width: 135 mm (5.3 in.)
Max. Weight: 40 kg (88.2 lbs.)

VHIS 35

Bench-top model with swing arm

Heating Capacity, 35 kg (77.2 lbs.)
(Max. Bearing Weight)
Voltages available:
120V and 230V

Min. Bore: 15 mm (0.6 in.)
Max. O.D.: 340 mm (13.4 in.)
Max. Width: 150 mm (5.9 in.)
Max. Weight: 35 kg (77.2 lbs.)

VHIS 75

TURBO model with swing arm

Heating Capacity, 95 kg (209.4 lbs.)
(Max. Bearing Weight)
Voltages available:
120V and 230V

Min. Bore: 15 mm (0.6 in.)
Max. O.D.: 480 mm (18.9 in.)
Max. Width: 200 mm (7.9 in.)
Max. Weight: 95 kg (209.4 lbs.)

VHIS 100

Bench-top model with swing arm

Heating Capacity, 125 kg (275.6 lbs.)
(Max. Bearing Weight)
Voltages available:
230V, 400V, 500V

Min. Bore: 30 mm (1.2 in.)
Max. O.D.: 520 mm (20.9 in.)
Max. Width: 200 mm (7.9 in.)
Max. Weight: 125 kg (275.6 lbs.)

VHIS 150

Bench top, medium capacity, TURBO model with swing arm

Heating Capacity, 350 kg (771.6 lbs.)
(Max. Bearing Weight)
Voltages available:
400V and 500V

Min. Bore: 30 mm (1.2 in.)
Max. O.D.: 790 mm (31.1 in.)
Max. Width: 315 mm (12.4 in.)
Max. Weight: 350 kg (771.6 lbs.)

Contact your Timken sales representative for assistance in building a custom solution for extremely large heaters.

VHIS 200

Mobile, medium capacity
with swing arm

Heating Capacity, 250 kg (551.2 lbs.)
(Max. Bearing Weight)
Voltages available:
400V and 500V

Min. Bore: 30 mm (1.2 in.)
Max. O.D.: 720 mm (28.3 in.)
Max. Width: 340 mm (13.4 in.)
Max. Weight: 250 kg (551.2 lbs.)

VHIS 400

Powerful, TURBO model,
mobile with swing arm

Heating Capacity, 550 kg (1212.5 lbs.)
(Max. Bearing Weight)
Voltages available:
400V, 450V, 500V

Min. Bore: 60 mm (2.4 in.)
Max. O.D.: 920 mm (36.2 in.)
Max. Width: 350 mm (13.8 in.)
Max. Weight: 550 kg (1212.5 lbs.)

VHIN 550

Powerful heater
for heavy bearings

Heating Capacity, 600 kg (1322.6 lbs.)
(Max. Bearing Weight)
Voltages available:
400V and 500V

Min. Bore: 60 mm (2.6 in.)
Max. O.D.: 900 mm (35.4 in.)
Max. Width: 400 mm (15.8 in.)
Max. Weight: 600 kg (1322.6 lbs.)

TURBO models are designed for high-output, energy-efficient performance. Turbo performance works in vertical heating position.

1. Horizontal position based on bore axis orientation of work piece and smallest yoke available for model.

2. Vertical position based on bore axis orientation of work piece.

VHIN 600

Heavy-duty TURBO model
for heavy bearings

Heating Capacity, 1200 kg (2645.5 lbs.)
(Max. Bearing Weight)
Voltages available:
400V and 500V

Min. Bore: 175 mm (6.9 in.)
Max. O.D.: 1700 mm (66.9 in.)
Max. Width: 750 mm (29.5 in.)
Max. Weight: 1200 kg (2645.6 lbs.)

VHIN 800

Powerful heater
for heavy bearings

Heating Capacity, 1250 kg (2750 lbs.)
(Max. Bearing Weight)
Voltages available:
400V and 500V

Min. Bore: 85 mm (3.4 in.)
Max. O.D.: 1400 mm (55.1 in.)
Max. Width: 420 mm (16.5 in.)
Max. Weight: 1250 kg (2645 lbs.)

TECHNICAL DATA	VHIN10	VHIN33 TURBO	VHIS35	VHIS 75 TURBO	VHIS100
ELECTRICITY					
Power rating	3.6 kVA	3.6 kVA	3.6 kVA	3,6 kVA	8 kVA
Available voltages	230V/16A	230V/16A	230V/16A	230V/16A	400V/20A
	120V/15A	120V/15A	120V/15A	120V/15A	500V/16A, 230V/20A
Frequency Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Yokes, standard, mm	10,14,40	10,14,40	14,30,60	14,30,60	20,70
Yokes, optional mm	7,20	7,20	10,20,40,50	10,20	30,40,50
Swivel arm	No	No	Yes	Yes	Yes
Plug	Yes	Yes	Yes	Yes	Yes
WORK PIECE					
Max. weight					
- Bearings	15 kg (33.1 lbs.)	40 kg (88.2 lbs.)	35 kg (77.2 lbs.)	95 kg (209.4 lbs.)	125 kg (275.6 lbs.)
- Other parts	10 kg (22.1 lbs.)	25 kg (55.1 lbs.)	20 kg (44.1 lbs.)	50 kg (110.2 lbs.)	75 kg (165.4 lbs.)
Min. bore diameter, horizontal 1	10 mm (0.4 in.)	10 mm (0.4 in.)	15 mm (0.6 in.)	15 mm (0.6 in.)	30 mm (1.2 in.)
Min. bore diameter, vertical 2		100 mm (4 in.)	100 mm (4 in.)	120 mm (4.8 in.)	110 mm (4.4 in.)
Max. O.D. bearing	210 mm (8.3 in.)	350 mm (13.8 in.)	340 mm (13.4 in.)	480 mm (18.9 in.)	520 mm (20.9 in.)
Max. work piece width	120 mm (4.8 in.)	135 mm (5.3 in.)	150 mm (5.9 in.)	200 mm (7.9 in.)	200 mm (7.9 in.)
POLE DIMENSIONS					
Cross section poles	40 mm (1.6 in.)	95 mm (3.7 in.)	60 mm (2.4 in.)	120 mm (4.7 in.)	70 mm (2.8 in.)
Pole height	130 mm (5.1 in.)	165 mm (6.5 in.)	140 mm (5.5 in.)	230 mm (9.1 in.)	210 mm (8.3 in.)
CONTROLS					
Temperature control					
- Max. reach	150° C (302° F)	240° C (464° F)	240° C (464° F)	240° C (464° F)	240° C (464° F)
- Magnetic probe	Yes	Yes	Yes	Yes	Yes
- Digital display	Yes	Yes	Yes	Yes	Yes
Time control					
- Max. reach	0-30 min.	0-45 min.	0-45 min.	0-45 min.	0-60 min.
- Digital display	Yes	Yes	Yes	Yes	Yes
Sound signal	Yes	Yes	Yes	Yes	Yes
Error report	Yes	Yes	Yes	Yes	Yes
Temperature hold	Yes	Yes	Yes	Yes	Yes
Automatic power reduction		Yes		Yes	Yes
Aut. demagnetising, <2A/cm	Yes	Yes	Yes	Yes	Yes
Thermal safety guard electronics	Yes	Yes	Yes	Yes	Yes
UNIT DIMENSIONS					
Dimensions (lxbxh)	460x240x280 mm (18.1x9.45x11.02 in.)	600x220x275 mm (23.6x8.7x10.8 in.)	340x290x380 mm (13.4 in.x11.4 in.x12.2 in.)	440x370x420 mm (17.3x14.6x14.2 in.)	630x365x470 mm (22.8x14.7x18.5 in.)
Weight heater	21 kg (46.3 lbs.) (incl. yokes)	23 kg (50.7 lbs.) (incl. yokes)	31 kg (68.3 lbs.)	37 kg (81.6 lbs.)	53 kg (116.9 lbs.)
Mobile	No	No	No	No	No

Models VHIN 550, 600, 800 - Cord and plug to be installed by customer in keeping with local requirements.

VHIS150 TURBO	VHIS200	VHIS400 TURBO	VHIN550	VHIN600 TURBO	VHIN800
8 kVA	12kVA	12 kVA	24 kVA	24 kVA	40 kVA
400V/20A	400V/30A	400V/30A	400V/60A	400V/60A	400V/100A
500V/20A	500V/30A	500V/24A	500V/60A	500V/60A	500V/80A
50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
80	80	80	100	standard sliding yoke	150
20,30,40,60	20,30,40,60	40,60	40,50,60,80		60,80,100
Yes	Yes	Yes	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
350 kg (771.6 lbs.)	250 kg (551.2 lbs.)	550 kg (1212.5 lbs.)	600 kg (1322.6 lbs.)	1200 kg (2645.5 lbs.)	1250 kg (2750 lbs.)
250 kg (551.1 lbs.)	150 kg (330.7 lbs.)	450 kg (992.1 lbs.)	350 kg (771.6 lbs.)	900 kg (1984.2 lbs.)	750 kg (1653.5 lbs.)
30 mm (1.2 in.)	30 mm (1.2 in.)	60 mm (2.4 in.)		175 mm (6.9 in.)	
160 mm (6.3 in.)	130 mm (5.2 in.)	175 mm (6.9 in.)	60 mm (2.4 in.)	200 mm (7.9 in.)	85 mm (3.4 in.)
790 mm (31.1 in.)	720 mm (28.3 in.)	920 mm (36.2 in.)	900 mm (35.4 in.)	1700 mm (66.9 in.)	1400 mm (55.1 in.)
315 mm (12.4 in.)	340 mm (13.4 in.)	350 mm (13.8 in.)	400 mm (15.8 in.)	750 mm (29.5 in.)	420 mm (16.5 in.)
160 mm (6.3 in.)	80 mm (3.2 in.)	175 mm (6.9 in.)	100 mm (3.9 in.)	200 mm (7.9 in.)	150 mm (5.9 in.)
320 mm (12.6 in.)	340 mm (13.4 in.)	305 mm (12 in.)	390 mm (15.4 in.)	595 mm (23.4 in.)	660 mm (26.0 in.)
240° C (464° F)	240° C (464° F)	240° C (464° F)	350° C (662° F)	240° C (464° F)	240° C (464° F)
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
0-60 min.	0-99 min.	0-99 min.	0-99 min.	0-99 min.	0-99 min.
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
1200x640x1000 mm (47.2x25.2x39.4 in.)	1200x640x1000 mm (47.2x25.2x39.4 in.)	1200x640x1000 mm (47.2x25.2x39.4 in.)	1000x500x1350 mm (39.4x19.7x53.2 in.)	1600x700x1300 mm (63.0x27.6x51.2 in.)	1750x600x1470 mm (68.9x23.62x57.48 in.)
105 kg (116.8 lbs.)	125 kg (275.6 lbs.)	185 kg (410.1 lbs.)	220 kg (485.0 lbs.)	450 kg (992.1 lbs.) (incl. yoke)	660 kg (1455.1 lbs.)
Yes (w/opt. trolley)	Yes	Yes	No	No	No

COMPARISON HEATING TIMES BETWEEN STANDARD AND TURBO HEATERS 120/480V

UP TO 110° C (230° F) IN MINUTES

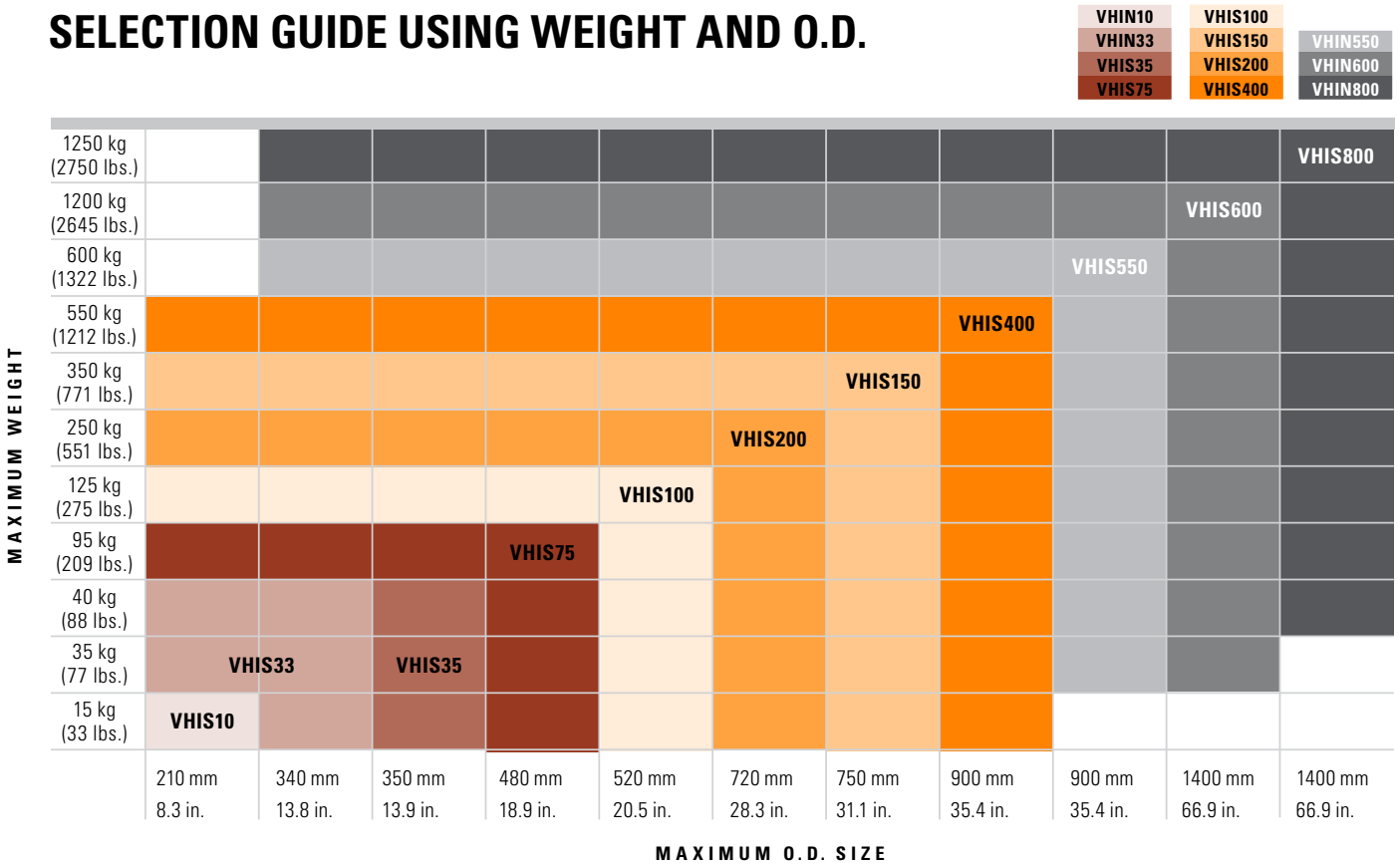
BEARING NO.		22322	22326	22332	23148	22348	23168	GEAR WHEEL
WEIGHT (kg)	12 kg	18 kg	30 kg	50 kg	65,5 kg	147 kg	210 kg	300 kg
I.D./O.D. (mm)		110/240	130/280	160/340	240/400	220/500	350/580	210/600
VHIN 10…. 120V	30:00	51:00						
VHIN 33… 120V		13:30	42:45					
VHIS 35… 120V		30:00	48:15					
VHIS 75… 120V		34:54		18:12	1:09			
VHIS 100… 480V				7:45	12:10	28:00		
VHIS 150… 480V				2:45	5:10	9:00	21:30	23:45
VHIS 200… 480V				5:25	8:15	17:00	32:55	47:20
VHIS 400… 480V					3:50	4:40	10:20	10:05
VHIS 550… 480V								
VHIS 600… 480V					1:30	1:55	3:50	3:20
VHIS 800… 480V								
VHIS 850… 480V								

COMPARISON HEATING TIMES BETWEEN STANDARD AND TURBO HEATERS 230/400V

UP TO 110° C (230° F) IN MINUTES

BEARING NO.		22322	22326	22332	23148	22348	23168	GEAR WHEEL
WEIGHT (kg)	12 kg	18 kg	30 kg	50 kg	65,5 kg	147 kg	210 kg	300 kg
I.D./O.D. (mm)		110/240	130/280	160/340	240/400	220/500	350/580	210/600
VHIN 10…. 230V		30:00						
VHIN 33… 230V		3:47		23:00				
VHIS 35… 230V		7:45		27:20				
VHIS 75… 230V		9:30		6:03				
VHIS 100… 230V		7:15		12:45	23:45	59:00		
VHIS 100… 400V		2:58		7:10	11:50	31:20		
VHIS 150… 400V				2:25	4:10	7:20	25:30	16:00
VHIS 200… 400V				6:30	10:05	22:45	45:10	61:00
VHIS 400… 400V					1:45	2:35	8:40	6:35
VHIS 550… 400V							3:50	
VHIS 600… 400V								
VHIS 800… 400V								
VHIS 850… 400V								

SELECTION GUIDE USING WEIGHT AND O.D.



The size and weight of your product are two of the many factors that determine which heater is right for your equipment. This chart is offered as a general guide only.

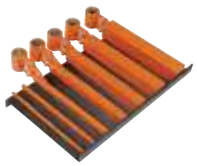
INDUCTION HEATERS

ACCESSORIES

GLOVES

Heat resistant to 150° C (302° F).

YOKE SET



Available for various models.

TEMPERATURE PROBE

Each Timken induction heater model is supplied with a magnetic temperature probe. A clamp also is available for nonferrous components.

PART NUMBERS

VHIN 10

VHIN10	Heater	VHIN10 230V EU Plug
VHIN10US	Heater	VHIN10 230V US Plug
VHIN10GB	Heater	VHIN10 230V UK Plug
VHIN101US	Heater	VHIN10 120V US Plug
VHIN101GB	Heater	VHIN10 120V UK Plug
VHIN10011	Accessory	VHIN10 Yoke 10x10x200
VHIN10012	Accessory	VHIN10 Yoke 14x14x200
VHIN10013	Accessory	VHIN10 Yoke 20x20x200
VHIN10015	Accessory	VHIN10 Yoke 40x40x200
VHIN10016	Accessory	VHIN10 Yoke 7x7x200

VHIN 33

VHIN331	Heater	VHIN33 230V EU Plug
VHIN331US	Heater	VHIN33 230V US Plug
VHIN331GB	Heater	VHIN33 230V UK Plug
VHIN332US	Heater	VHIN33 120V US Plug
VHIN332GB	Heater	VHIN33 120V UK Plug
VHIN33010	Accessory	VHIN33 Yoke 7x7x240
VHIN33011	Accessory	VHIN33 Yoke 10x10x240
VHIN33012	Accessory	VHIN33 Yoke 14x14x240
VHIN33013	Accessory	VHIN33 Yoke 20x20x240
VHIN33014	Accessory	VHIN33 Yoke 40x40x240

VHIS 35

VHIS35	Heater	VHIS35 230V EU Plug
VHIS35GB	Heater	VHIS35 230V UK Plug
VHIS351GB	Heater	VHIS35 120V UK Plug
VHIS352US	Heater	VHIS35 230V US Plug
VHIS353US	Heater	VHIS35 120V US Plug
VHIS35011	Accessory	VHIS35 Yoke 10x10x280
VHIS35013	Accessory	VHIS35 Yoke 20x20x280
VHIS35014	Accessory	VHIS35 Yoke 30x30x280
VHIS35015	Accessory	VHIS35 Yoke 40x40x280
VHIS35016	Accessory	VHIS 35 Yoke 50x50x280
VHIS35017	Accessory	VHIS35 Yoke 60x60x280

VHIS 75

VHIS751	Heater	VHIS75 230V EU Plug
VHIS751GB	Heater	VHIS75 230V UK Plug
VHIS752GB	Heater	VHIS75 120V UK Plug
VHIS753US	Heater	VHIS75 230V US Plug
VHIS754US	Heater	VHIS75 120V US Plug
VHIS75010	Accessory	VHIS75 Yoke 10x10x350
VHIN75011	Accessory	VHIS75 Yoke 14x14x350
VHIS75011	Accessory	VHIS75 Yoke 14x14x350
VHIS75012	Accessory	VHIS75 Yoke 20x20x350
VHIS75013	Accessory	VHIS75 Yoke 30x30x350
VHIS75014	Accessory	VHIS75 Yoke 40x40x350
VHIS75015	Accessory	VHIS75 Yoke 50x50x350
VHIS75016	Accessory	VHIS 75 Yoke 60x60x350

VHIS 100

VHIS1005	Heater	VHIS100 400V EU Plug
VHIS1008US	Heater	VHIS100 230V US Plug
VHIS1011US	Heater	VHIS100 500V US Plug
VHIS100013	Accessory	VHIS100 Yoke 20x20x350
VHIS100014	Accessory	VHIS100 Yoke 30x30x350
VHIS100015	Accessory	VHIS100 Yoke 40x40x350
VHIS100016	Accessory	VHIS100 Yoke 50x50x350
VHIS100018	Accessory	VHIS100 Yoke 70x70x350

VHIS 150

VHIS150US	Heater	VHIS150 500V US Plug
VHIS1501EU	Heater	VHIS150 400V EU Plug
VHIS1502EU	Heater	VHIS150 500V EU Plug
VHIS15013	Accessory	VHIS150 Mobile Trolley
VHIS200013	Accessory	VHIS150/200 Yoke 20x20x500
VHIS200014	Accessory	VHIS150/200 Yoke 30x30x500
VHIS200015	Accessory	VHIS150/200 Yoke 40x40x500
VHIS200017	Accessory	VHIS150/200 Yoke 60x60x500
VHIS200019	Accessory	VHIS150/200 Yoke 80x80x500

VHIN 200

VHIS2002	Heater	VHIS200 400V EU Plug
VHIS2004	Heater	VHIS200 500V EU Plug
VHIS2007US	Heater	VHIS200 500V US Plug
VHIS200013	Accessory	VHIS150/200 Yoke 20x20x500
VHIS200014	Accessory	VHIS150/200 Yoke 30x30x500
VHIS200015	Accessory	VVHIS150/200 Yoke 40x40x500
VHIS200017	Accessory	VHIS150/200 Yoke 60x60x500
VHIS200019	Accessory	VHIS150/200 Yoke 80x80x500

VHIS 400

VHIS4001	Heater	VHIS400 400V EU Plug
VHIS4003US	Heater	VHIS400 500V US Plug
VHIS400017	Accessory	VHIS400 Yoke 60x60x600
VHIS400015	Accessory	VHIS400 Yoke 40x40x600
VHIS400019	Accessory	VHIS400 Yoke 80x80x600

VHIN 550

VHIN5502	Heater	VHIN550 400V EU Plug
VHIN5504US	Heater	VHIN550 500V US Plug
VHIN550015	Accessory	VHIN550 Yoke 40x40x700
VHIN550016	Accessory	VHIN550 Yoke 50x50x700
VHIN550017	Accessory	VHIN550 Yoke 60x60x700
VHIN550019	Accessory	VHIN550 Yoke 80x80x700

VHIN600

VHIN600EU	Heater	VHIN600 400V EU Plug
VHIN600EU	Heater	VHIN600 500V EU Plug
VHIN600US	Heater	VHIN600 500V US Plug

VHIN 800

VHIN8002	Heater	VHIN800 400V EU Plug
VHIN8004US	Heater	VHIN800 500V US Plug
VHIN800017	Accessory	VHIN800 Yoke 60x60x850
VHIN800019	Accessory	VHIN800 Yoke 80x80x850
VHIN800021	Accessory	VHIN800 Yoke 100x100x850
VHIN800022	Accessory	VHIN800 Yoke 150x150x850

ACCESSORIES

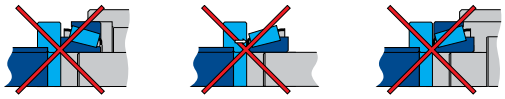
VHIA100001	Accessory	Magnetic temp probe 240° C (464° F) - VHIN10 / VHIN33 /VHIS35 /VHIS75 /VHIS100
VHIA100014	Accessory	Magnetic temp probe 350° C (662° F) - VHIN550 /VHIN800 /VHIN850
VHIA100020	Accessory	Gloves heat resistant 150° C (302° F)
VHIA100015	Accessory	Magnetic temp probe 240° C (464° F) - VHIS200 /VHIS400 /VHIN550 /VHIN800 /VHIN850

IMPACT FITTING TOOL

Mounting

Proper mounting is essential to ensure long bearing life. Designed to permit the safe, precise and quick mounting of bearings, bushings, sealing rings, cam wheels and pulleys, the Timken impact fitting tool set features impact-resistant plastic collets. These help deter metal-to-metal contact and the resulting shaft damage.

During the mounting of bearings where the faces lie in the same plane, the collets enable the load to be transmitted to the ring experiencing the interference fit. If the impact mounting tool is used, mounting forces are not transmitted via the rolling elements and damage to the raceways is avoided.



This set includes:
- 33 collets ranging from 10 mm to 110 mm
- Three sleeves
- One impact hammer
- Case size: 16.9 in. x 12.6 in. x 4.0 in.

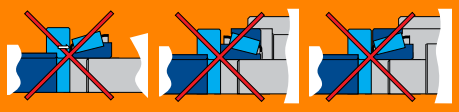
VIFT3300

Warning Information for Impact Fitting Tool

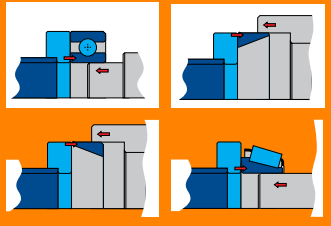
See additional warnings on page 2.

- When operating the impact fitting tool, wear protective clothing, including safety shoes, protective glasses, gloves and helmet.
- Do not use the collets to mount components that have temperatures greater than 80° C (176° F).
- Never mount the cup and cone of a tapered bearing together and never mount a cone from the front face.

Care should be taken when mounting tapered roller bearings. The cup can be mounted in either direction, but the cone can only be mounted from the back face. This ensures that the cage does not overhang. Never mount a cup and cone together and never mount a cone from the front face. This will avoid damage to the cage and raceways, which could lead to failure, and a risk of damage to the equipment and death or serious injury.



Proper mounting allows the load to be transmitted to the ring experiencing the interference fit. Mounting forces are not transmitted via the rolling elements, helping to prevent damage to the raceways.



IMPACT FITTING TOOL SELECTION GUIDE

SLEEVE	RING	ALL ISO BEARING CODES ENDING WITH	60, 62 63, 64	12, 22 13, 23	70, 72B 73B	32, 33	222, 213 223	NU, NJ N 2 3 4	302, 322 303, 330	320, 313 323, 332
	10-26	000	6000	129	7000					
	10-30	200	6200	1200		3200				
			2200							
	10-35	300	6300	1300	7300					
	12-28	001	6001							
	12-32	201	6201	1201		3201				
			2201							
	12-37	301	6301	1301	7301					
			2301							
A1	15-32	002	6002							
	15-35	202	6202	1202	7202B	3202				
			2202							
	15-42	302	6302	1302		3302			30302	
			2302							
	17-35	003	6003							
			16003							
	17-40	203	6203	1203	7203B	3203			30203	
			2203							
	17-47	303	6303	1303	7303B	3303			30303	32303
			2303							
	20-42	004	6004		7004					32004
	20-47	204	6204	1204	7204B	3204		204	30204	
			2204							
	20-52	304	6304	1304	7304B	3304	21304	304	30304	32304
		403	6403	2304						
	25-47	005	6005		7005					32005
	25-52	205	6205	1205	7205B	3205	22205	205	30205	33205
B2			2205					32205		
	25-62	305	6305	1305	7305B	3305	21305	305	30305	31305
		404	6404	2305						32305
	30-55	006	6006							32006
	30-62	206	6206	1206	7206B	3206	22206	206	30206	33206
			2206					32206		
	30-72	306	6306	1306	7306B	3306	21306	306	30306	31306
		405	6405	2206				405		32306
	35-62	007	6007		7007					32007
	35-72	207	6207	1207	7207B	3207	22207	207	30207	33207
			2207					32207		
	35-80	307	6307	1307	7307B	3307	21307	307	30307	31307
		406	6406	2307				406		32307
	40-68	008	6006							32008
	40-80	208	6208	1208	7208B	3208	22208	208	30208	33208
								32208		
	40-90	308	6308	1308	7308B	3308	21308	308	30308	31308
C3		407	6407	2308			22308	407		32308
	45-75	009	6009						32009	
	45-85	209	6209	1209	7209B	3209	22209	209	30209	33209
			2209					32209		
	45-100	309	6309	1309	7309B	3309	21309	309	30309	31309
		408	6408	2309			22309	408		32309
	50-80	010	6010						33010	32010
	50-90	210	6210	1210	7210B	3210	22210	210	30210	33210
			2210					32210		
									JM205149/JM205110	
	50-110	310	6310	1310	7310B	3310	21310	310	30310	31310
		409	6409	2310			22310	409		32310
	Impact rings 50-90, 45-100, 50-110 also fit the following bearing where only the outer ring is to be fitted, e.g., shaft not installed:									
	50-90		6011							
			6012							
	45-100		6013	1211	7211B	3211	22211	211		
			6211	2211	7212B					
C3	50-110		6014	1212	7213B	3212	22212	212		
			6015	1213		3213	22213	213		
			6212	2213		3211	21311	311		
			6213	2213			22311	410		
			6311	1311						
			6410	2311						

For tapered bearings, impact rings fit outer ring and also inner ring if driving from large-diameter side. The numbers on each impact ring (e.g., 25-62) are clearly marked on the ring. The first figure refers to shaft diameter, the second to bearing outer diameter.

HYDRAULIC & SELF-CENTERING HYDRAULIC PULLERS

Timken carries a wide range of self-contained portable hydraulic and mechanical pulling systems that have capacities from four to 30 tons. They are ideal for removing all kinds of shaft-fitted parts.

Advantages

- Self-centering pullers avoid damage to parts as the applied force is distributed evenly. Integrated pump, cylinder, hose and puller with safety-release valve.
- Compact design: The self-contained hydraulic pump and puller saves space.
- Sets are supplied in a handy carrying case.
- Multi-purpose: Ideal for pulling a wide variety of press-fit parts including bearings, wheels, bushings, gears and pulleys.
- The pump handle rotates 360-degrees, enabling users to pull from the most convenient position.
- Pullers can be used with two or three legs.
- Available with accessories.

Warning Information for Pullers

See additional warnings on page 2.

- Check condition of puller before use.
- Exchange for new parts, any parts having indications of wear and tear, such as ground down parts, overloaded parts or worn-out parts.
- Do not use a hammer when operating spindle.
- If any indications of overload, stiff working, etc., occur during pulling, stop the procedure at once. Try to use a larger or different type of puller if necessary.
- For proper puller engagement, the jaws/legs must be centered.
- When pulling, make sure puller and pulled parts are kept covered by the safety blanket to provide protection from injury caused by flying fragments from broken parts.
- When operating the puller, wear protective clothing, including safety shoes, protective glasses, gloves and helmet.
- Keep spindle and puller body clean and oiled.
- Avoid puller overload, as it can result in breakage of the puller's arms and/or beam.
- This breakage can cause damage to the puller, shaft and bearing as well as death or serious personal injury.

Self-Centering Hydraulic Pullers

The same power as our standard models, but with the added convenience of hand operation. No more fumbling to engage the puller to the part. Self-centering makes pulling shaft-fitting parts easy. Self-centering hydraulic pullers come preassembled.

SELF-CENTERING HYDRAULIC PULLERS

MODEL	MAX. WITHDRAWAL FORCE	ARM LENGTH	WIDTH OF GRIP	STROKE WIDTH	A	B	C	D	E	F	G	WEIGHT
VHPS4	4 t	190 mm (7.48 in.)	315 mm (12.4 in.)	60 mm (2.4 in.)	13 mm (0.5 in.)	10 mm (0.4 in.)	22 mm (0.9 in.)		40 mm (1.6 in.)	42 mm (1.7 in.)	22 mm (0.9 in.)	8 kg (18 lbs.)
VHPS6A	6 t	230 mm (9.1 in.)	390 mm (15.4 in.)	70 mm (3.4 in.)	13 mm (0.5 in.)	10 mm (0.4 in.)	22 mm (0.9 in.)		50 mm (2 in.)	45 mm (1.8 in.)	23 mm (0.9 in.)	10 kg (22 lbs.)
VHPS8	8 t	280 mm (11 in.)	460 mm (18.1 in.)	85 mm (3.4 in.)	13 mm (0.5 in.)	13 mm (0.5 in.)	27.5 mm (1.1 in.)		70 mm (2.7 in.)	50 mm (2 in.)	25 mm (1 in.)	12 kg (26 lbs.)
VHPS12	12 t	300 mm (11.8 in.)	515 mm (20.3 in.)	85 mm (3.4 in.)	15 mm (0.6 in.)	16.5 mm (0.7 in.)	29 mm (1.1 in.)		70 mm (2.7 in.)	60 mm (2.4 in.)	28 mm (1.1 in.)	15 kg (33 lbs.)
VHPS20	20 t	325 mm (12.8 in.)	520 mm (20.5 in.)	111 mm (4.4 in.)	20 mm (0.8 in.)	27 mm (1.1 in.)	33 mm (1.3 in.)		62 mm (2.4 in.)	80 mm (3.2 in.)	40 mm (1.6 in.)	25 kg (55 lbs.)
VHPS30	30 t	415 mm (16.3 in.)	620 mm (24.4 in.)	111 mm (4.4 in.)	20 mm (0.8 in.)	27 mm (1.1 in.)	38 mm (1.5 in.)		85 mm (3.3 in.)	98 mm (3.9 in.)	50 mm (2 in.)	36 kg (80 lbs.)

HYDRAULIC PULLERS

MODEL	MAX. WITHDRAWAL FORCE	1	2	3	A	B	C	D	E	F	G	WEIGHT
VHPT4	4 t	185 mm (7.3 in.)	255 mm (10.0 in.)	60 mm (2.4 in.)	11 mm (0.4 in.)	6 mm (0.2 in.)	22 mm (0.9 in.)	32 mm (1.3 in.)	84 mm (3.3 in.)	42 mm (1.7 in.)	22 mm (0.9 in.)	4.5 kg (9.9 lbs.)
VHPT6A	8 t	220 mm (8.7 in.)	330 mm (13.0 in.)	70 mm (2.8 in.)	13 mm (0.5 in.)	10 mm (0.4 in.)	25 mm (1.0 in.)	51 mm (2.0 in.)	122 mm (4.8 in.)	65 mm (2.6 in.)	25 mm (1.0 in.)	6.5 kg (14.3 lbs.)
VHPT8	8 t	230 mm (9.1 in.)	350 mm (13.8 in.)	85 mm (3.4 in.)	11 mm (0.4 in.)	10 mm (0.4 in.)	25 mm (1.0 in.)	51 mm (2.0 in.)	122 mm (4.8 in.)	50 mm (2.0 in.)	25 mm (1.0 in.)	6.5 kg (14.3 lbs.)
VHPT12	12 t	270 mm (10.6 in.)	375 mm (14.8 in.)	85 mm (3.4 in.)	14 mm (0.6 in.)	10 mm (0.4 in.)	29 mm (1.1 in.)	51 mm (2.0 in.)	118 mm (4.6 in.)	60 mm (2.4 in.)	28 mm (1.1 in.)	8 kg (17.6 lbs.)
VHPT20	20 t	360 mm (14.2 in.)	520 mm (20.5 in.)	111 mm (4.4 in.)	20 mm (0.8 in.)	27 mm (1.1 in.)	33 mm (1.3 in.)	60 mm (2.4 in.)	161 mm (6.3 in.)	80 mm (3.2 in.)	40 mm (1.6 in.)	22 kg (48.5 lbs.)
VHPT30	30 t	360 mm (14.2 in.)	550 mm (21.7 in.)	111 mm (4.4 in.)	20 mm (0.8 in.)	27 mm (1.1 in.)	38 mm (1.5 in.)	60 mm (2.4 in.)	155 mm (6.1 in.)	98 mm (3.9 in.)	50 mm (2.0 in.)	32 kg (70.6 lbs.)

FITS BOTH SELF-CENTERING AND STANDARD HYDRAULIC PULLERS.

SPLITTER ACCESSORY SETS **(HYDRAULIC PUMP NOT INCLUDED)**

	PULLER	ARM LENGTH	WIDTH OF GRIP	MIN. O.D.	MAX. O.D.	WEIGHT
VHPT490*	VHPT4	250 mm (9.8 in.)	110 mm (4.3 in.)	25 mm (1.0 in.)	110 mm (4.3 in.)	6.5 kg (14.3 lbs.)
VHPT690A*	VHPT6	270 mm (10.6 in.)	220 mm (8.7 in.)	50 mm (2.0 in.)	180 mm (7.1 in.)	8.5 kg (18.7 lbs.)
VHPT890*	VHPT8	270 mm (10.6 in.)	210 mm (8.3 in.)	50 mm (2.0 in.)	220 mm (8.7 in.)	5.5 kg (21.1 lbs.)
VHPT1290*	VHPT12	380 mm (15.0 in.)	290 mm (11.4 in.)	80 mm (3.2 in.)	290 mm (11.4 in.)	13.0 kg (28.7 lbs.)

* Will work with VHPT/VHIS series.

MECHANICAL PULLERS

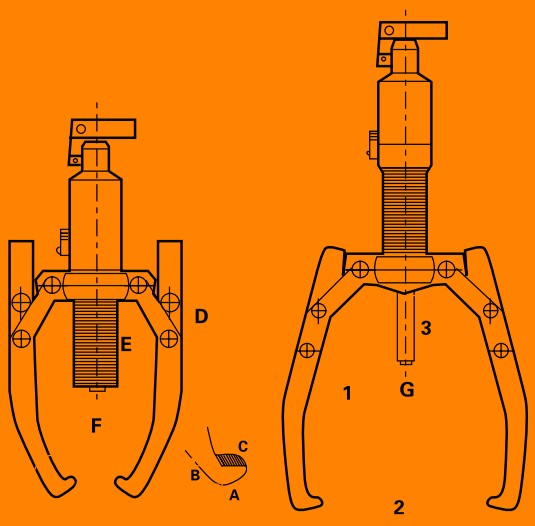
After the required type of puller has been identified, it is easy to choose the most suitable model from the series listed in the catalog.

Please note that understanding the work space and possibility of gripping will ensure proper fit of grip.

Compare size and measurement of the part to be removed to the values indicated in the table (below) to choose the suitable puller. The choice of mechanical puller depends also on required pulling force.

The most important factor is safety: always choose a larger or stronger puller. Three-arm pullers better distribute the pulling force than two-arm devices, therefore; if there is enough space, three-arm pullers should be the first choice.

For safety purposes and service life of the puller, never exceed the maximum capacity. The capacity data has been determined for new pullers. Normal wear and tear in practice and damage may decrease these figures.



1 - Reach | 2 - Spread | 3 - Stroke

MECHANICAL PULLERS

MODEL	MAX. WITHDRAWAL FORCE	ARM LENGTH	WIDTH OF GRIP	STROKE WIDTH	A	B	C	D	E	F	G	WEIGHT
VMPS2	2 t	80 mm (3.1 in.)	120 mm (4.7 in.)		8 mm (0.3 in.)	6 mm (0.2 in.)	15 mm (0.6 in.)				16 mm (0.625 in.)	1.6 kg (3.5 lbs.)
VMPS3	3 t	120 mm (4.7 in.)	180 mm (7.1 in.)		6 mm (0.2 in.)	7 mm (0.3 in.)	15 mm (0.6 in.)				16 mm (0.625 in.)	2.3 kg (5.1 lbs.)
VMPS5	5 t	160 mm (6.3 in.)	270 mm (10.6 in.)		11 mm (0.4 in.)	10 mm (0.4 in.)	25 mm (1 in.)				19 mm (.75 in.)	4.3 kg (9.5 lbs.)
VMPS8	8 t	210 mm (8.3 in.)	300 mm (11.8 in.)		13 mm (0.5 in.)	14 mm (0.6 in.)	27 mm (1.1 in.)				19 mm (.75 in.)	6.1 kg (13.4 lbs.)

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related power transmission rebuild and repair services.

Stronger. By Design.

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