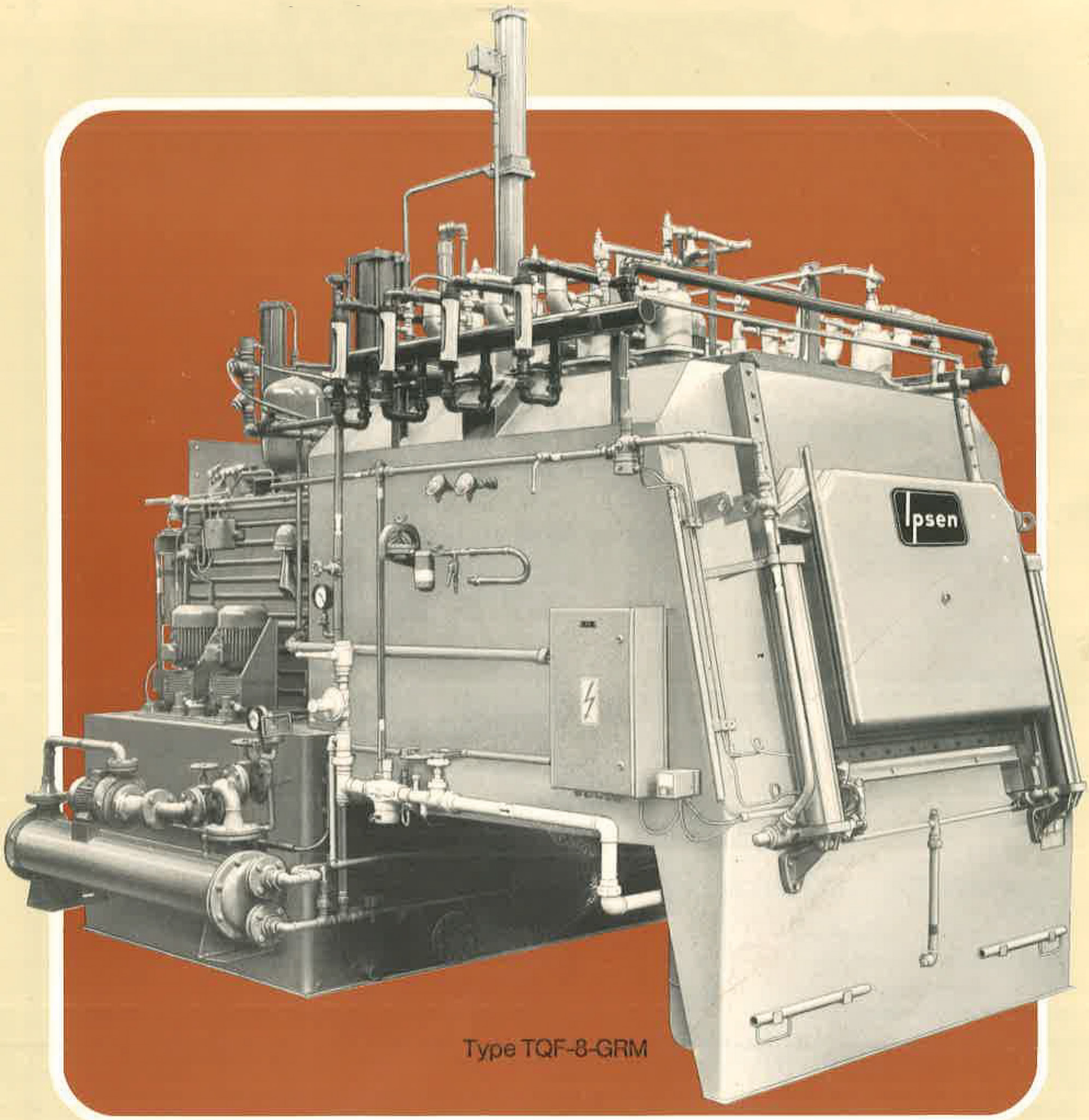
T-85-E

# IPSEN

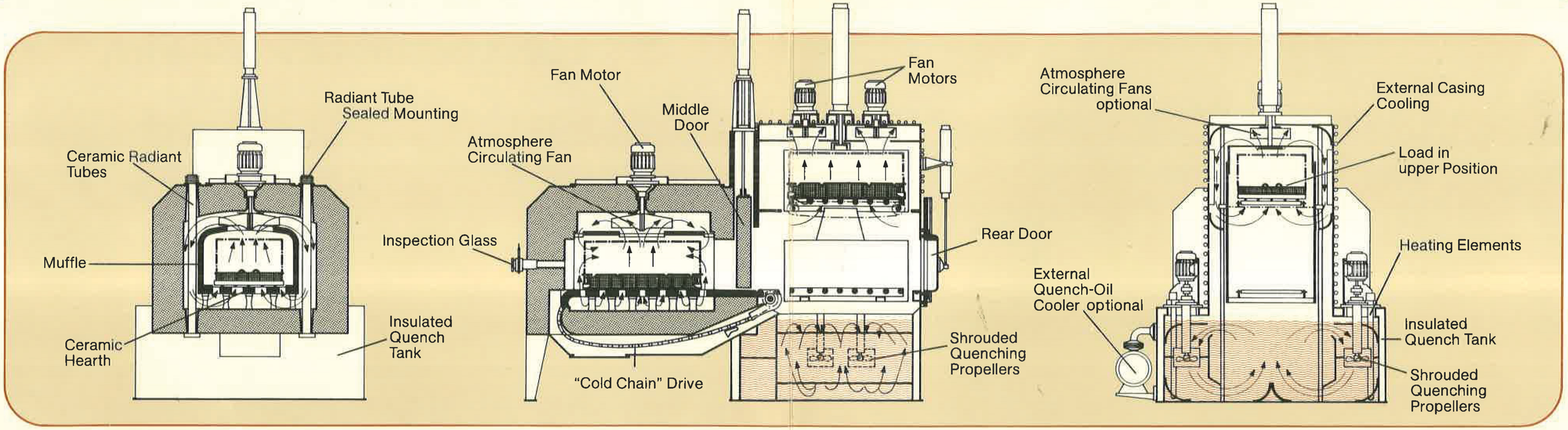
# Sealed Quench

## Atmosphere Furnaces




Type TQF-8-GRM

Ipsen




## Technical Data

| Sizes (Series RT-) | Overall Furnace Dimensions W x L x H¹ (H²) mm / inch | Max. Charge Dimensions W x L x H mm / inch | Max. Furnace Heat Input Gas kWh④ / 1000 BTU/h | Max. Furnace Heat Input Electr. kW / kW | Heating Rate up to 850°C Gas kg Steel/h / lbs Steel/h | Heating Rate up to 850°C Electr. kg Steel/h / lbs Steel/h | Max. Gross Weight of Load kg / lbs | Approximate Shipping Weight ⑤ kg / lbs |
|---|---|---|---|---|---|---|---|---|
| 1 ①③ | 1350 x 3800 x 3000 -- / 52 x 150 x 117 -- | 280 x 440 x 300 / 11 x 18 x 12 | ---- | 27 / 27 | ---- | 90 / 198 | 90 / 198 | 2300 / 5100 |
| 2 | 1800 x 3000 x 3500 (3650) / 71 x 118 x 138 (144) | 400 x 630 x 300 / 16 x 25 x 12 | 90 / 305 | 40 / 40 | 180 / 396 | 150 / 330 | 180 / 396 | 4500 / 9900 |
| 4 | 2200 x 3550 x 3650 (3800) / 87 x 140 x 143 (149) | 610 x 910 x 460 / 24 x 36 x 18 | 144 / 490 | 67 / 67 | 300 / 660 | 250 / 550 | 350 / 770 | 6100 / 13400 |
| 5 ② | 2200 x 3550 x 4250 (4400) / 87 x 140 x 168 (174) | 610 x 910 x 610 / 24 x 36 x 24 | 144 / 490 | 72 / 72 | 300 / 660 | 270 / 590 | 350 / 770 | 7200 / 15800 |
| 6 ②③ | 2200 x 3550 x 4850 -- / 87 x 140 x 191 -- | 610 x 910 x 760 / 24 x 36 x 30 | 144 / 490 | 78 / 78 | 300 / 660 | 300 / 660 | 350 / 770 | 7700 / 16900 |
| 7 | 2500 x 4400 x 4050 (4200) / 98 x 172 x 160 (166) | 760 x 1220 x 510 / 30 x 48 x 20 | 228 / 775 | 119 / 119 | 500 / 1100 | 500 / 1100 | 600 / 1320 | 7700 / 16900 |
| 8 ② | 2500 x 4400 x 4250 (4400) / 98 x 172 x 167 (173) | 760 x 1220 x 610 / 30 x 48 x 24 | 228 / 775 | 126 / 126 | 500 / 1100 | 500 / 1100 | 600 / 1320 | 8800 / 19400 |
| 9 ② | 2500 x 4400 x 4900 (5050) / 98 x 172 x 192 (198) | 760 x 1220 x 760 / 30 x 48 x 30 | 276 / 940 | 140 / 140 | 600 / 1320 | 600 / 1320 | 600 / 1320 | 9400 / 20700 |
| 10 ②③ | 2500 x 4400 x 4900 -- / 98 x 172 x 192 -- | 760 x 1220 x 760 / 30 x 48 x 30 | 322 / 1095 | 140 / 140 | 730 / 1600 | 600 / 1320 | 1000 / 2200 | 9400 / 20700 |
| 11 | 3000 x 4400 x 4400 (4600) / 118 x 172 x 173 (181) | 910 x 1220 x 610 / 36 x 48 x 24 | 322 / 1095 | 126 / 126 | 730 / 1600 | 520 / 1100 | 1000 / 2200 | 9900 / 21800 |
| 13 ②③ | 3000 x 4400 x 5000 -- / 118 x 172 x 196 -- | 910 x 1220 x 760 / 36 x 48 x 30 | 322 / 1095 | 140 / 140 | 730 / 1600 | 580 / 1320 | 1000 / 2200 | 10200 / 22400 |
| 17 ②③ | 3000 x 4400 x 5200 -- / 118 x 172 x 204 -- | 910 x 1220 x 910 / 36 x 48 x 36 | 322 / 1095 | 168 / 168 | 730 / 1600 | 730 / 1600 | 1200 / 2200 | 10500 / 23100 |
| 25 ③ | 3000 x 4750 x 4400 -- / 118 x 186 x 173 -- | 1220 x 1520 x 610 / 48 x 60 x 24 | 368 / 1255 | 162 / 162 | 800 / 1760 | 620 / 1360 | 1300 / 2860 | 12500 / 27500 |
| 26 ②③ | 3000 x 4750 x 5000 -- / 118 x 186 x 196 -- | 1220 x 1520 x 760 / 48 x 60 x 30 | 368 / 1255 | 180 / 180 | 800 / 1760 | 700 / 1540 | 1300 / 2860 | 13500 / 29700 |

① = Without internal transport chains. Load transferred by rods
Length including loading and unloading track
Electrically heated only
② = Requires a shallow pit for the quench tank, height above floor
③ = Available in design RTQ only
④ = 1 kWh = 860 kcal/h = 3600 kJ/h
⑤ = Shipping weight for design RTQ;
for RTQP and RTQPF: + 20%
H¹ = height of design RTQ
H² = height of designs RTQP and RTQPF
Work level above floor: Sizes 1 to 10 = 1105 mm
Sizes 11 to 26 = 1220 mm

### Applications:
Carburizing, carbon restoration, carbonitriding, Nitemper® bright hardening, normalizing and annealing.

**Operating Temperature:** max. 1100°C

**Heating:** Gas or electricity

### Furnace Atmospheres:
Endothermic, exothermic or other common protective or reactive atmospheres, optional automatically controlled by the Ipsen Carbon Sensor or Infratronik

### Advantages:
- Complete treatment cycle takes place in a protective gas atmosphere
- no formation of oxide during entire treatment
- treatment and transfer of load in furnace is fully automatic within the unit
- high output with low space requirement
- minimum effect on the environment
- low protective gas consumption
- low outer temperatures of furnace walls
- units delivered ready for service connections to be made
- no foundations needed for erection – certain sizes need a small pit
- all units pre-tested before despatch
- short commissioning time
- no lifting equipment needed for loading and unloading work baskets
- adapts easily to required temperature alterations
- treatment temperatures and carbon level of atmospheres can be altered during the cycle without removing the load
- rapid change from one treatment process to another
- optional cooling of the loads in oil or in circulated or static protective gas atmosphere
- martempering in oil possible up to 150°C quench bath temperature (optional extra: up to 200°C)

### Special Design Features:
- Compact design by the Ipsen module system
- change of location without complicated building work
- wear-resistant flat silicon carbide hearth with high load capacity
- powerful directed atmosphere circulation with large fan and ceramic muffle
- high heating rate resulting in high hardening capacity
- temperature uniformity in the load ±7 K, or even better
- long-life, distortion-free special ceramic radiant tubes; ceramic flame-busters with gas heating
- internal transfer mechanisms for heavy loads
- automatic loading and unloading of the heating chamber and return of intermediate cooled loads for reheating
- little maintenance needed
- automatic loading devices available, no support grids necessary, therefore greater useful load (see our leaflet CA-79-DEF)
- light, stable, stackable work baskets with high net weight of load
- optional: separate control panel with recorder for furnace and oil bath temperatures as well as for the value of the carbon potential of the furnace atmosphere ($CO_2$ or oxygen potential if applied)
- optional: external cooling of quench oil by water or air
- optional: atmosphere circulating fans for fast cooling of loads (Design RTQPF)
- optional: RECON recuperative radiant tubes with 25–35% saving in heating gases and reduction of combustion noise
- all wear and tear parts easily accessible and replaceable

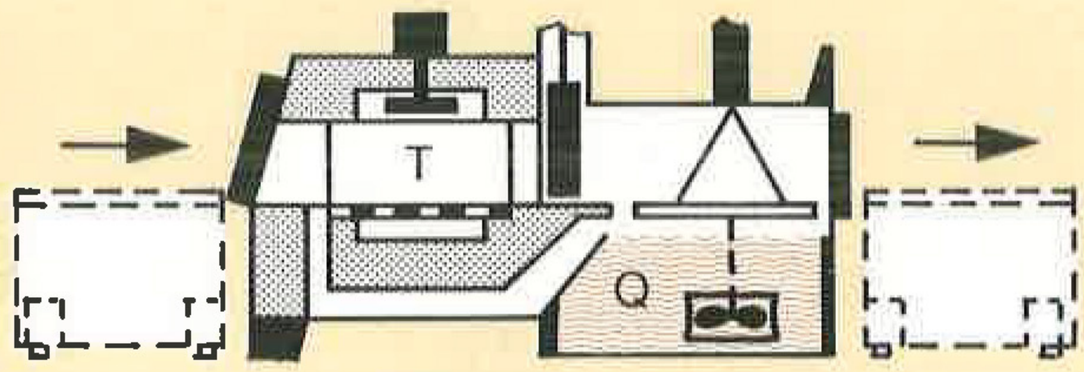
**The general design features** of IPSEN atmosphere furnaces are explained in detail in our prospectus "KA".

**IPSEN units are built in accordance with the latest safety and pollution control standards.**

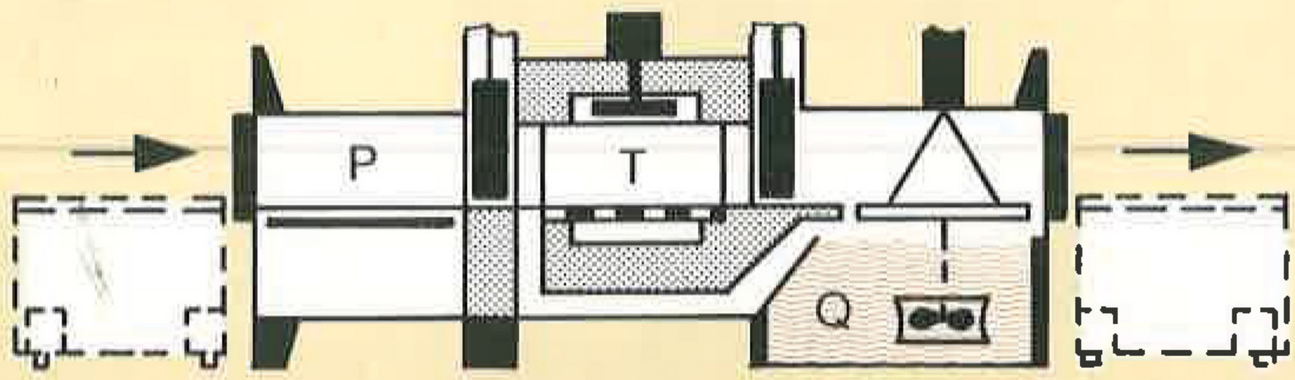
Subject to alterations · Special types on request

# Types of Ipsen Sealed Quench Units

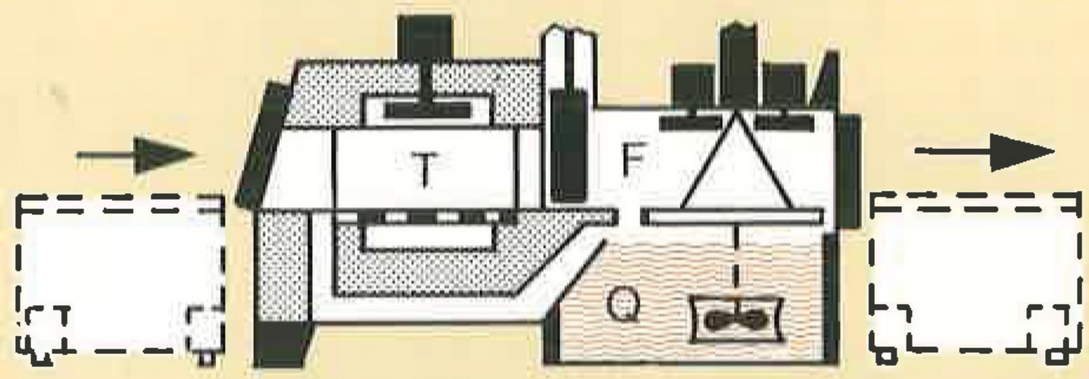
TQ– . . .



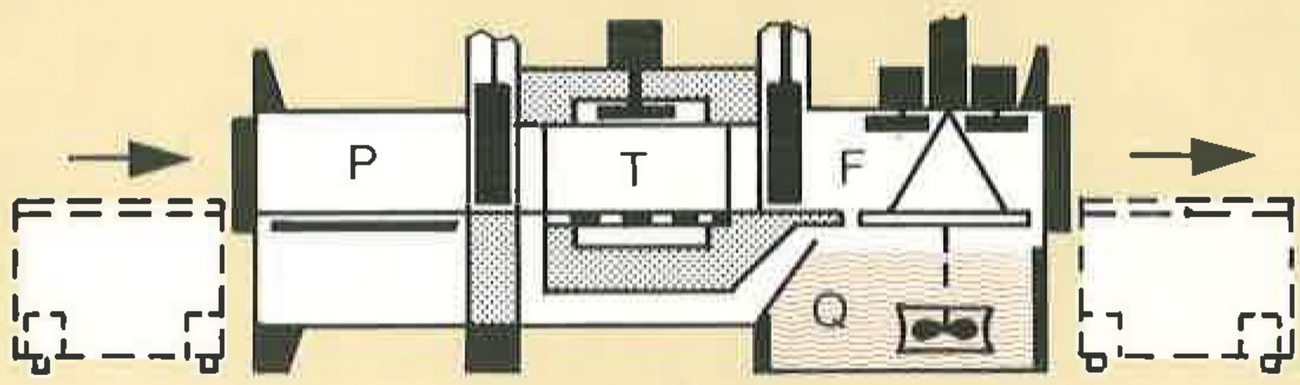

TQP– . . .




TQF– . . .




TQPF– . . .

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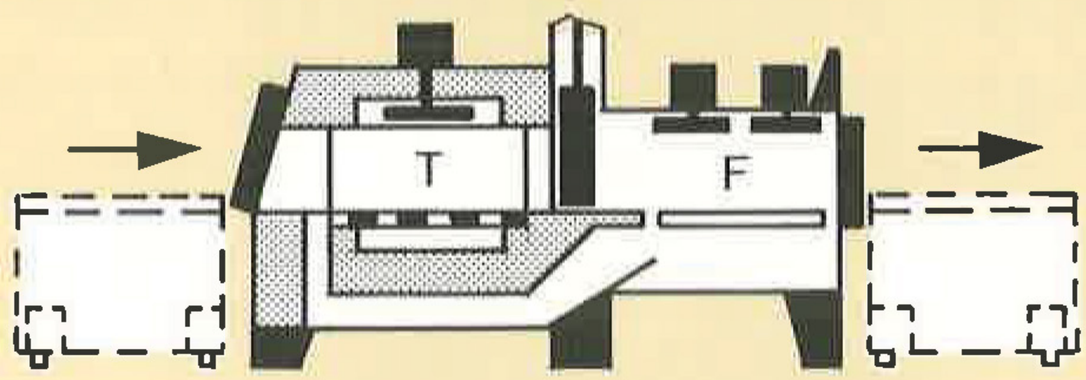
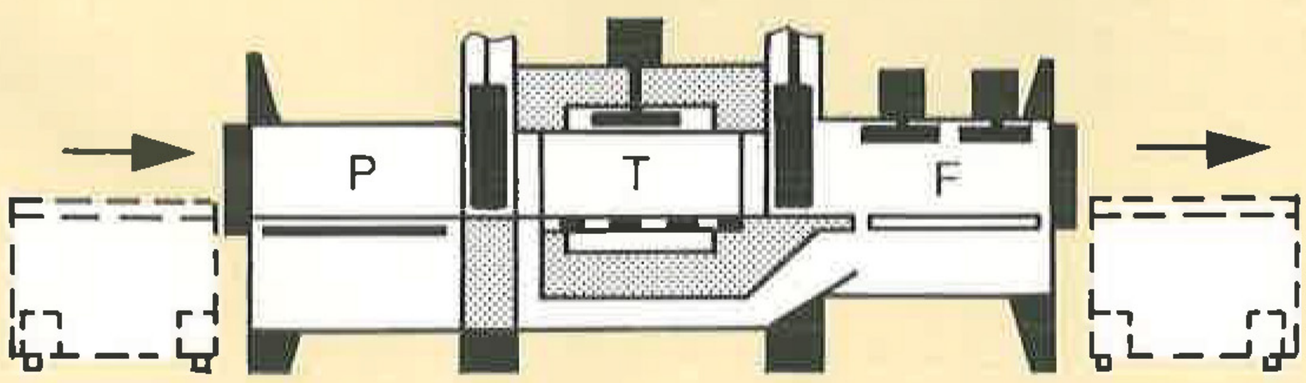



TPF– . . .





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