

# uncooled thermal oil pumps

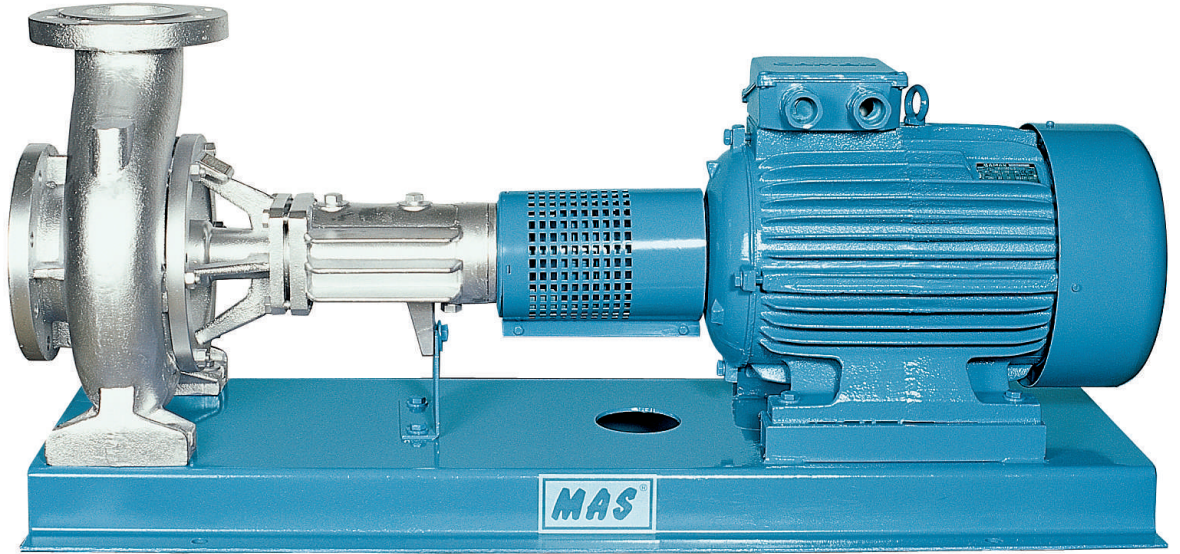
KALİTE POMPALAR

# KYP



1997  
**POMSAD**  
Member of  
Pump Manufacturers'  
Association

Member of Europump



## KYP - Series

Pumping heat transfer oils in heat transfer plants.

Oil temperature : 100 – 350 °C

Capacity : 10 - 300 m<sup>3</sup>/h

Total Head : 5 - 90 m.

Operating Pressure up to 16 Bar.

## MAS Pompa Sanayi A.Ş.

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**MAS**

# general specifications

## Fields of Application

- Chemical and petrochemical processing industries
- Paper mills, sugar mills.
- Food and pharmaceutical industries.
- Leather industries.
- Manufacturing of plastic and syntetic fiber material
- Rubber industries.
- For heating of baking ovens.
- Textile plants.
- Launderies.
- All heat transfer applications over 100 ° C

## Pumped Liquids

All kinds of heat transfer liquids.

## General Information

The KYP series comprises horizontal single stage centrifugal pumps, specially designed for the pumping of thermal fluids at a high temperature, in industrial installations, without needing any type of external refrigeration. The Hydraulic characteristics of pumps are in accordance with the standard DIN 24 256 ( ISO 2858) for chemical pumps. Which means that for each installation the most suitable pump can be used to give optimum performance.

## Design

From the hydraulic point of view, the KYP pumps are centrifugal single stage, horizontal, volute type pumps.

With regards to the mechanical design, the main concept of the KYP series is to a maximum, the mechanical seal and ball bearings from the source of heat that constitutes the pump casing, placing between both a thermal barrier and cooling the mechanical seal housing and bearing support by natural convection.

Pump and motor are fitted on a common baseplate connected to each other by a flexible coupling.

## Pump Casing

Single spiral volute type, radially split with integrated suction and discharge ports and also integrally cast feet for baseplate attachment. Thanks to back pull-out design, maintenance is much easier as the inside of the pump can be dismantled without needing to disconnect the casing from the pipe connections. Suction port is axial and discharge is vertical.

## Impeller

The impellers of the KYP pumps are single entry, closed type and dynamically balanced. The impeller has back wings for the axial balancing of pressures.

## Shaft and Support

The impeller is overhung mounted on the end of the shaft. The shaft is designed to be able to withstand all mechanical and thermal efforts generated during operation of the pump with minimum deflection. The bearing housing is made of cast iron and apart from serving as the shaft support, it also houses the mechanical seal. It is equipped with external cooling wings .

## Shaft Seal & Bearings

Shaft sealing is obtained by means of a high security mechanical seal , placed in the bearing housing, close to the second ball bearing near to the shaft end. This means that the seal is housed in a low temperature zone, given the distance from the pump casing , thus obtaining a long life for the seal.

The first ball bearing near to the casing is lubricated by pumped liquid. A safety stuffing box with a following throttling area is arranged in front of the first ball bearing and mechanical seal. Even in case of failure of the mechanical seal, this additional safety elements prevent seepage from emerging in a hazardous quantity and manner.

The second ball bearing is located near to the end of the shaft and lubricated by grease.

## Technical Data

- Suction and Discharge Nozzles :.DN 32 ...DN 100
- Operating Pressure: .....: 16 Bar
- Speed : .....: 1450 – 1750 - 2900 – 3600 RPM
- Capacity Range : .....: 10 - 300 m<sup>3</sup> / h
- Head Range :.....: 5 - 90 m.

## Pump Flanges

- According to DIN 2533 – PN 16

Identification Code      KYP 80 - 250

Pump Type \_\_\_\_\_  
 Discharge Nozzle DN (mm) \_\_\_\_\_  
 Rated Impeller Diam. (mm) \_\_\_\_\_

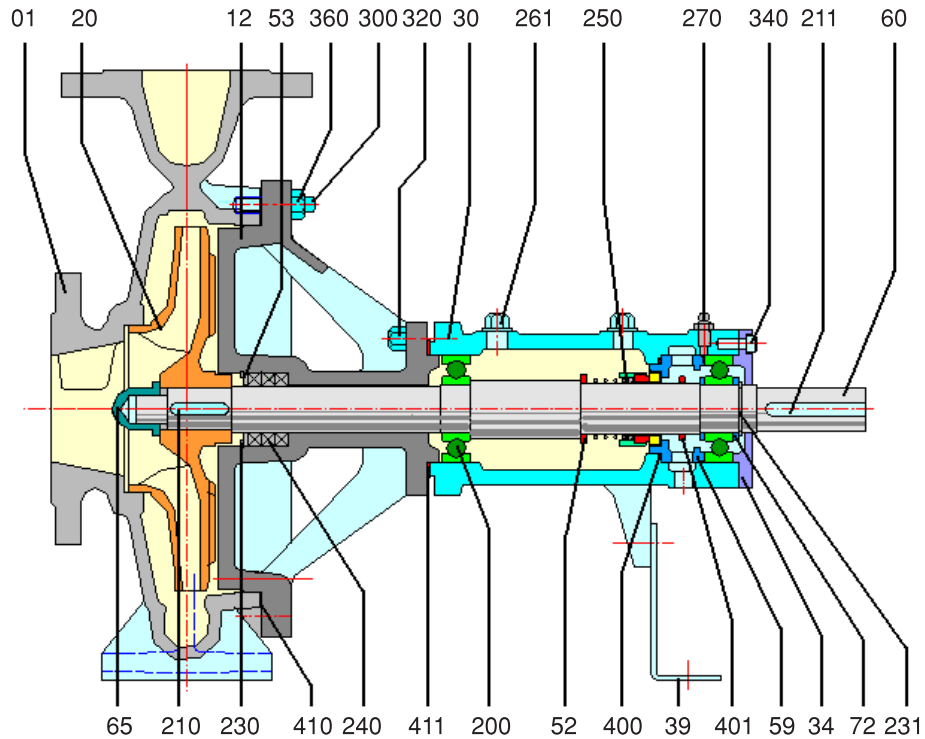
## Materials

For standard construction the KYP pump casing and casing cover are made with nodular cast iron ( GGG 40 ) which is very resistant to high temperatures.

Impeller and bearing housing are made with cast iron (GG 25 )

Shaft is made with % 13 Chromium Stainless steel. On demand the pumps can be supplied in different materials. ( Cast steel, Stainless Steel, Bronze etc.)

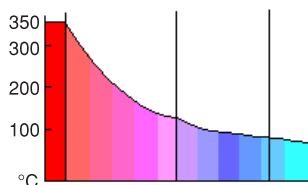
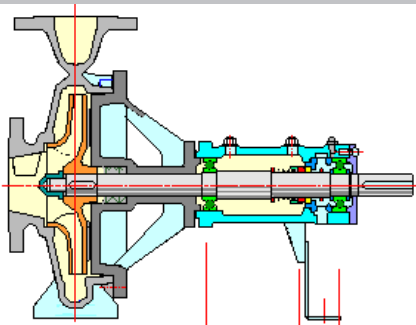
# sectional drawing & parts list



## Parts List

01	Pump Casing	65	Impeller Nut	270	Grease Cup
12	Discharge Cover	72	Space Ring	300	Casing Stud
20	Impeller	200	Ball Bearing	320	Hex. Bolt
30	Bearing housing	210	Impeller Key	340	Imbuss Bolt
34	Bearing Cover	211	Coupling Key	360	Casing Nut
39	Support Foot	230	Retaining Ring	400	Gasket For Casing
52	Mech.Seal Ring	231	Retaining Ring	401	O-Ring ( Mech. Seal)
53	Soft Packing Ring	240	Soft Packing	410	O-Ring (Shaft)
59	Mec.Seal Housing	250	Mechanical Seal	411	Gasket For Bea. Housing.
60	Shaft	261	Oil Filling Plug		

## Temperature Curve of KYP Pumps



## Practical Calculation of Pump Capacity

$$Q = \frac{Ht}{C_p \times \Delta t} \times 4.18$$

**Q** : Capacity of pump ( m<sup>3</sup> / hr )

**Ht** : Heat transferred in one hour ( Kcal / hr )

**C<sub>p</sub>** : Specific Heat Capacity of pumped oil at Pumping temperature ( KJ / Kg.K )

**Δt** : Temperature Difference of heating cycle ( °C )

**4.18** : Correction constant for cycle heat capacity to volumetric pump capacity.

**Example:** Heat capacity Ht = 2 000 000 Kcal / hr

Average pumping Temp: t = 300 °C

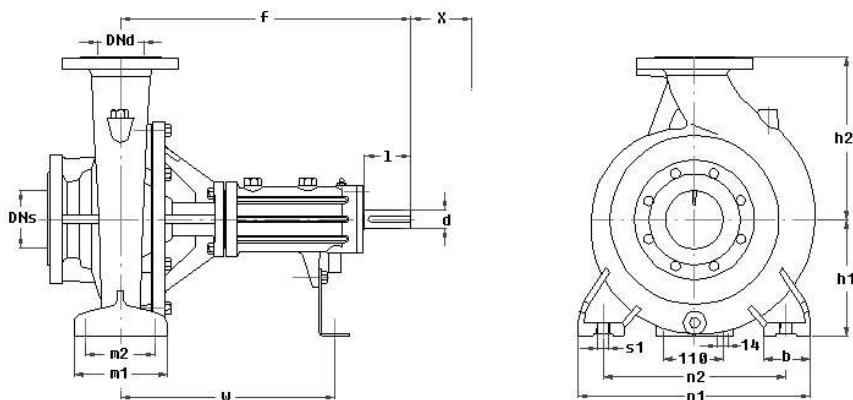
Pumped oil : Mobilterm 605

C<sub>p</sub> = 2800 KJ/Kg.K for Pumping Temp ( t = 300 °C )

Δt = 40 °C

$$\text{Pump capacity } Q = \frac{2\,000\,000}{2800 \times 40} \times 4.18 = 74.6 \text{ m}^3/\text{hr}$$

# pump dimensions



No	Pump Size DIN 24256	Flanges		Lenght		Height		Feet		Fixing Details					Shaft End (*)		
		DN5	DNd	a	f	h1	h2	b	m1	m2	n1	n2	s1	W	d	l	x
1	32-160	50	32	80	385	132	160	50	100	70	240	190	14	285	24	50	65
2	32-200	50	32	80	385	160	180	50	100	70	240	190	14	285	24	50	65
3	32-250	50	32	100	500	180	225	65	125	95	320	250	14	370	32	80	80
4	40-160	65	40	80	385	132	160	50	100	70	240	190	14	285	24	50	75
5	40-200	65	40	100	385	160	180	50	100	70	265	212	14	285	24	50	75
6	40-250	65	40	100	500	180	225	65	125	95	320	250	14	370	32	80	75
7	50-160	65	50	100	385	160	180	50	100	70	265	212	14	285	24	50	80
8	50-200	65	50	100	385	160	200	50	100	70	265	212	14	285	24	50	85
9	50-250	65	50	100	500	180	225	65	125	95	320	250	14	370	32	80	85
10	65-160	80	65	100	500	160	200	65	125	95	280	212	14	370	32	80	100
11	65-200	80	65	100	500	180	225	65	125	95	320	250	14	370	32	80	100
12	65-250	80	65	100	500	200	250	80	160	120	360	280	18	370	32	80	100
13	80-160	100	80	125	500	180	225	65	125	95	320	250	14	370	32	80	110
14	80-200	100	80	125	500	180	250	65	125	95	345	280	14	370	32	80	110
15	80-250	100	80	125	500	200	280	80	160	120	400	315	18	370	32	80	115
16	100-200	125	100	125	500	200	280	80	160	120	360	280	18	370	32	80	120

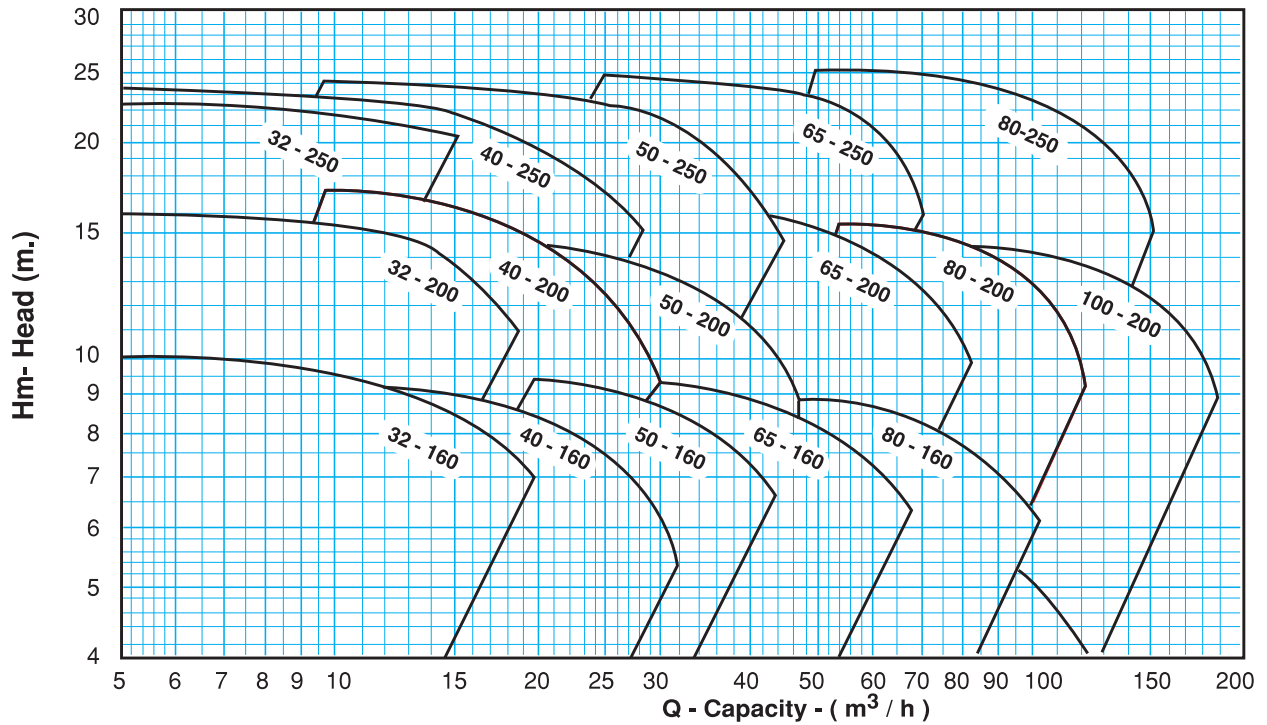
(\*) Back pull-out distance required between motor shaft end and pump shaft end.  
KYP type pumps are conforming with DIN 24 256 and ISO 2858

# interchangeability table

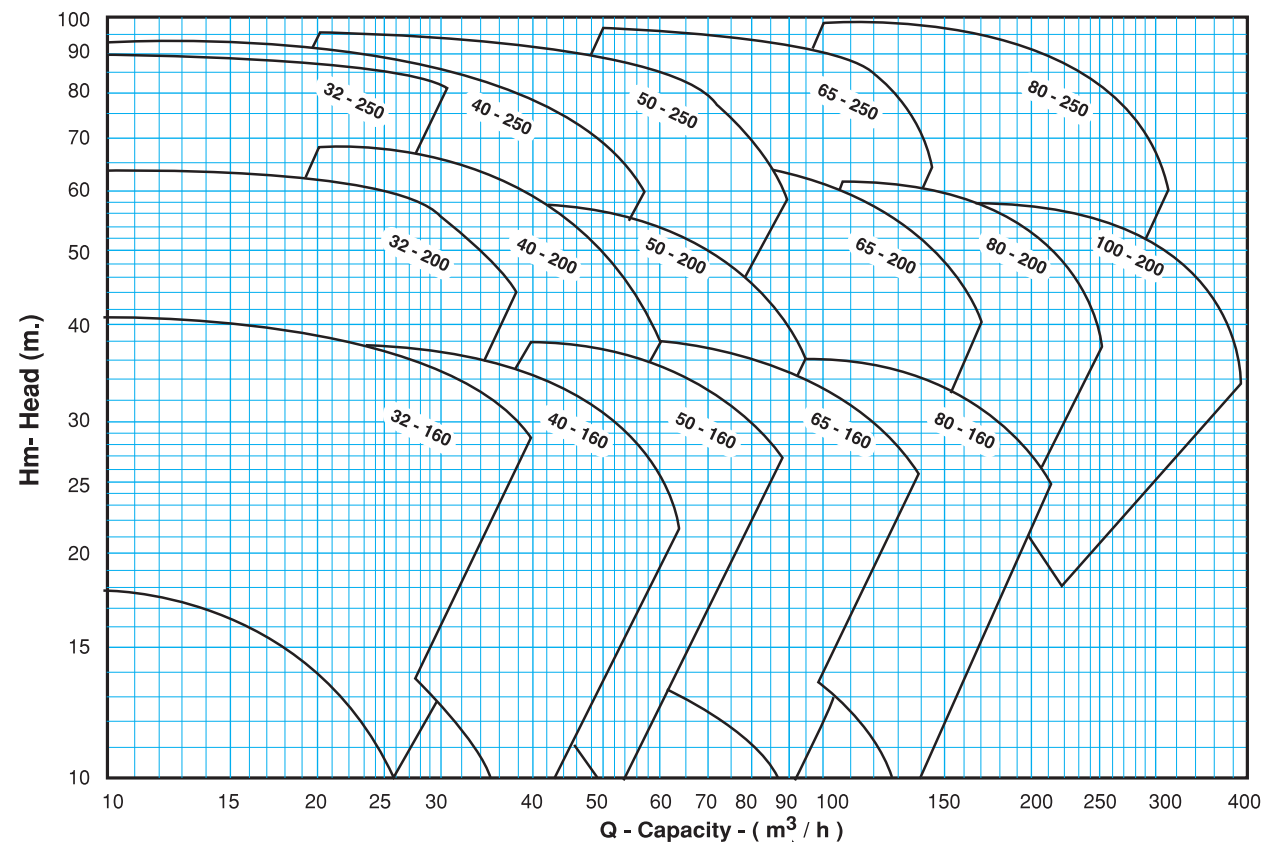
Main Group	A						B									
Sub Group	A1			A2			B1			B2			B3			
PUMP TYPE																
CASING																
IMPELLER																
CASING COVER																
SHAFT																
BEARING HOUSING																
MEC. SEAL & BEARINGS																

# hydraulic data

## Performance Range - 1450 RMP

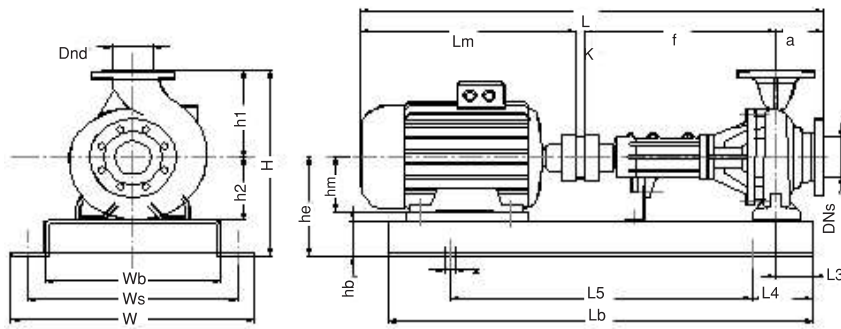


## Performance Range - 2900 RMP





# overall dimensions



PUMP SIZE	Motor	PUMP				OVERALL			MOTOR		BASE PLATE												
	KW	DNs	DNd	a	f	L	W	H	Lm	hm	Lb	Wb	hb	he	L3	L4	L5	Ws	s3				
KYP 32-160	1.5	50	32	80	385	775	330	358	300	90	710	240	65	197	60	115	480	290	19				
	2.2					800			325	90													
	3					840			365	100													
	4					859			384	112													
KYP 32-200	4	50	32	80	385	859	330	405	384	112	800	240	65	225	60	130	540	290	19				
	5.5					930	360		455	132		270						320					
	7.5					930	455		132	150		600						400		24			
	11					1069	450		420												594	160	900
KYP 32-250	7.5	50	32	100	500	1065	450	485	455	132	1000	340	80	260	73	170	660	400	24				
	11					1204			594	160													
	15					1204			594	160	190									740	400	24	
	18.5					1248			638	160													
KYP 40-160	3	65	40	80	385	840	330	357	365	100	800	240	65	197	60	130	540	290	19				
	4					859	360		455	132		270						320					
	5.5					930	455		132	150		600						400		24			
	7.5					930	455		132														
KYP 40-200	5.5	65	40	100	385	950	360	405	455	132	800	270	65	225	60	130	540	320	19				
	7.5					950	455		132	150	600	400						24					
	11					1089	450		420											594	160	900	340
	15					1089	594		160														
KYP 40-250	15	65	40	100	500	1204	450	485	594	160	1120	340	80	260	73	190	740	400	24				
	18.5					1248			638	160		380						440					
	22					1264			440	654		180						205		840	490		
	30					1357			540	505		747										200	1250
KYP 50-160	4	65	50	100	385	879	360	405	384	112	800	270	65	225	60	130	540	320	19				
	5.5					950			455	132		150						600		400	24		
	7.5					950			455	132													
	11					1089			450	420		594						160		900	340	80	240
KYP 50-200	7.5	65	50	100	385	950	360	425	455	132	800	270	65	225	60	130	540	320	19				
	11					1089	450		440	594	160	900						340		80	240		
	15					1089	594		160	170	660	400						24					
	18.5					1133	638		160											1000			
KYP 50-250	22	65	50	100	500	1264	490	485	654	180	1120	380	80	260	73	190	740	440	24				
	30					1357	540		505	747	200	1250						430		280			
	37					1357	747		200	205	840	490											
	45					1400	610		550									790		225	1400	530	100
KYP 65-160	5.5	80	65	100	500	1065	390	425	455	132	900	300	65	225	73	150	600	350	19				
	7.5					1065	455		132	190	740	400						24					
	11					1204	594		160														
	15					1204	450		450	594	160	1120						340		80	240		
KYP 65-200	18.5	80	65	100	500	1248	450	485	638	160	1120	340	80	260	73	190	740	400	24				
	22					1264	490		654	180		1250						430		280	400		
	30					1357	540		505	747		200						1250		430	280	490	
	37					1357	747		200														
KYP 65-250	22	80	65	100	500	1264	490	530	654	180	1120	380	80	280	90	190	740	440	24				
	30					1357	540		530	747	200	1250						430		280			
	37					1357	747		200	205	840	490											
	45					1400	610		575									790		225	1400	530	100
KYP 80-160	7.5	100	80	125	500	1090	450	485	455	132	900	340	80	380	73	190	740	400	24				
	11					1229			594	160	150							600		440			
	15					1229			594	160													
	18.5					1273			638	160													
KYP 80-200	22	100	80	125	500	1289	490	530	654	180	1120	380	80	280	73	205	840	490	24				
	30					1382	540		530	747		200						1250		430	280		
	37					1382	747		200	230		940						600					
	45					1425	610		575											790	225	1400	530
KYP 80-250	55	100	80	125	500	1525	660	600	890	250	1400	530	100	350	90	205	840	550	28				
	75					1525	660		630	890	250	1250						480		325			
	90					1593	730		660	958	280	1400						530		350	600		
	90					1645	730		660	1010	280	1400						600		380	670		
KYP 100-200	30	125	100	125	500	1382	540	540	747	200	1250	430	80	280	90	205	840	490	24				
	37					1382			747	200		230						940		600			
	45					1425			610	605											790	225	1400
	55					1525			660	630		890						250		1400	600	380	670