Iran Piston

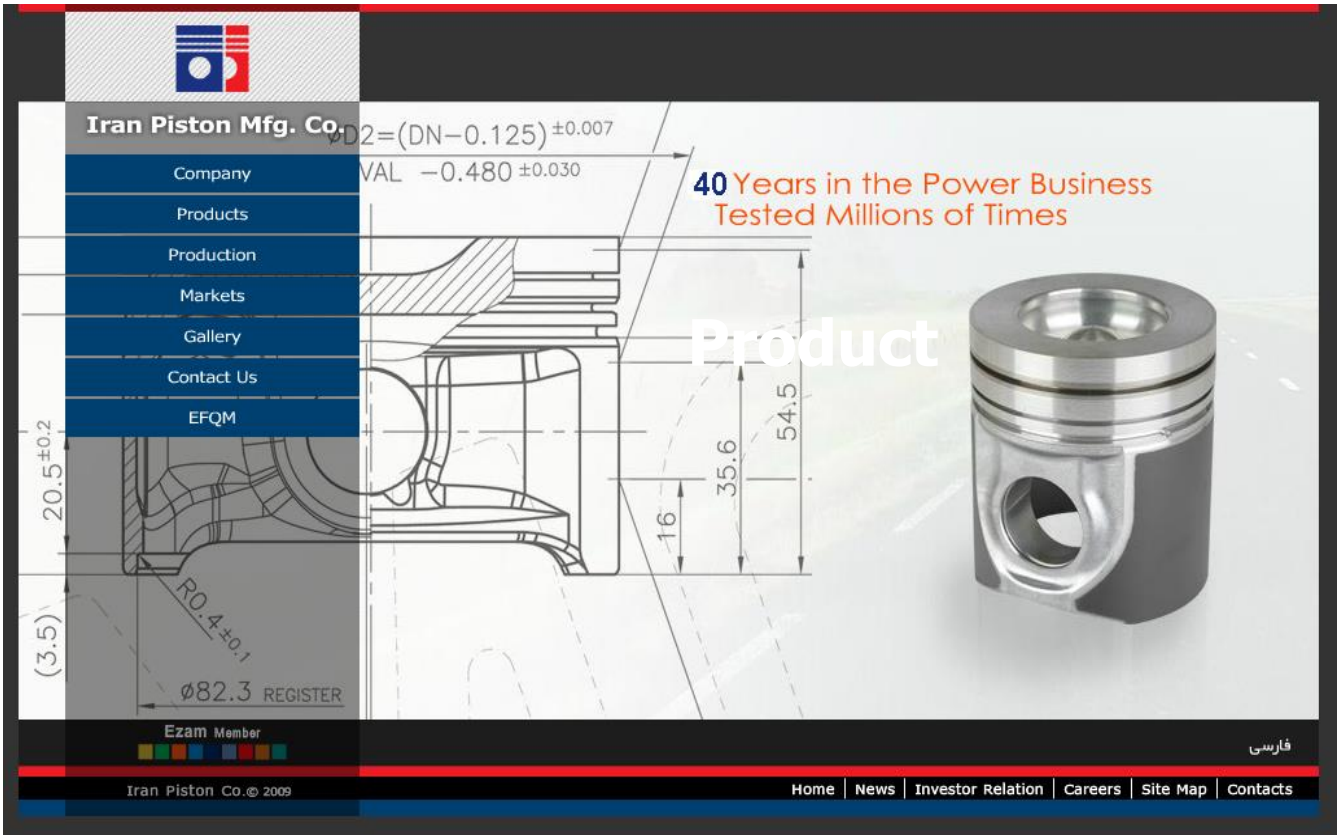
IPMC Manufacturing Company (IPMCo)

PRODUCT CATALOGUE 2015

40 Years
in the Power Business,
Tested Millions
of Times ...

- Ability to design and respond to customer requirements
- Exceptional sensivity of QC tests, with ranges of acceptability within 0.1 micron
- High production capacity
- Automated, mechanized production lines, making it the lagest, most modern automotive production facility in Iran and the region

EZAM
Automotive parts group



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http://www.ipmc-group.com/

EN Just register at our online shop as a customer with your password or click on guest access.
Our authorities are at your service on workdays.

PE جهت کسب اطلاعات در خصوص شرکت و محصولات میتوانید به وب سایت شرکت مراجعه کرده و یا با شماره تلفن های شرکت تماس حاصل فرمایید.

مسئولین شرکت همه روزه پاسخگوی سوالات شما عزیزان و مشتریان گرامی خواهند بود

persion

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بیش از ۴۰ سال است که محصولات شرکت تولیدی پیستون ایران(IPMCo) نماد توسعه صنعتی و تکنولوژیک در صنعت قطعه سازی ایران بوده و با خلق ارزشهایی همچون خلاقیت، کارافرینی، تعهد به مشتری گرایی، احترام به کرامت انسانی و تلاش در جهت دستیابی به بالاترین سطح کارایی، تامین کننده اصلی پیستون برای صنعت خودروسازی ایران بوده است.

مشارکت و تعامل سازنده میان ذینفعان شرکت IPMCo با مشتریان، یک پیشرفت دایمی و موفقیت را در توسعه فرایند و محصول رقم زده که منجر به ایجاد جایگاه رهبری در بازار OEM و AM ایران شده است . اکنون در اندیشه جهانی شدن، استراتژی شرکت IPMCo حفظ اقتدار دانایی محور و رهبری بازار، ورود به چرخه جهانی تامین پیستون و ارائه راه حل های کارامد برای موتور خودروهای آینده در ایران و جهان می باشد.

تاریخچه شرکت تولیدی پیستون ایران

۱۳۵۲:
- احداث کارخانه با دانش فنی و سرمایه گذاری مشترک شرکت MAHLE آلمان در شهر تبریز

۱۳۵۳:
- شروع بهره برداری به عنوان اولین تولید کننده پیستون در ایران

۱۳۵۷:
- تامین نیاز شرکت ایران خودرو و تولید پیستون پیکان و تامین نیاز شرکت ایدم و تولید پیستون دیزلی موتورهای بنز

۱۳۶۰:
- تکمیل پروژه های نیمه تمام و تلاش در جهت رسیدن به ظرفیت تولید اسمی

۱۳۷۲:
- واگذاری به بخش خصوصی و شکل گیری طرح های توسعه تولیدی و بازرگانی شرکت

۱۳۷۵:
- تاسیس واحد R&D
- افزایش ظرفیت تولید به ۸۰۰ هزار پیستون بنزینی و ۲۰۰ هزار پیستون دیزلی
- افزایش تنوع محصول از ۵ تیپ به ۱۰ تیپ

۱۳۷۷:
- توسعه کارگاه ابزار سازی و دستیابی به تکنولوژی ساخت قالب ریخته گری

۱۳۷۸:
- افزایش ظرفیت به دومیلیون عدد پیستون در سال
- تولید پیستون پراید و تامین نیاز شرکت مگا موتور(سایپا)

۱۳۸۱:
- بهره برداری از کارخانه تولید گژن پین (دیزلی و بنزینی) با ظرفیت ۵ میلیون عدد در سال

۱۳۸۲:
نصب و راه اندازی سه خط جدید اتوماتیک (CNC) از کشور آلمان و افزایش ظرفیت تولید پیستون به ۵ میلیون عدد در سال

:۱۳۸۳

بهره برداری از سیستم های اتوماتیک در کنترل نهایی

:۱۳۸۵

- راه اندازی دستگاه رویه کاری به روش SILKSCREEN
- تولید پیستون و گژن پین با طراحی جدید و وزن سبک تر جهت افزایش قدرت و شتاب موتور
- تولید پیستون پیکان بدون استراتس و کاهش مصرف سوخت به میزان ۲۰ درصد
- استفاده از آلیاژ پیشرفته با موادی نظیر تیتانیوم، زیرکونیوم و وانادیم جهت کاهش سایش و افزایش عمر پیستون

:۱۳۸۶

- تولید انواع پیستون های گاز سوز، بنزینی و دیزلی با استاندارد EURO2
- تولید پیستون با قطر ۱۵۰ میلی متر برای مصرف در انواع موتورهای دیزلی کششی و لوکوموتیو
-

:۱۳۸۷

- تغییر تکنولوژی تولید گژن پین دیزلی به روش کششی
- راه اندازی مجموعه سازی شاتون و پیستون خودروهای بنزینی
- نصب و راه اندازی خطوط جدید جهت تولید پیستون های پیشرفته نظیر پیستون پژو ۲۰۶
- اقدام برای خریداری دستگاه های پیشرفته ریخته گری جهت تولید پیستون های مدرن با Cooling Gallery
-

:۱۳۸۸

- تکمیل پروژه ملی و اقدام به طراحی و ساخت پیستون جهت موتور مشابه با سوخت گازوییل
- مشارکت در پروژه ملی مگا موتور(S81) در زمینه طراحی و ساخت پیستون، گژن پین و رینگ این موتور
- تولید پیستون های Volvo N12-F12-Howo
- دریافت لوح تقدیر و تندیس حامی برتر محیط زیست در آذربایجان شرقی

:۱۳۸۹_۱۳۹۴

- افزودن یک خط سنگ زنی به واحد گژن پین و افزایش ظرفیت تولید به ۷ونیم میلیون گژن پین در سال
- خرید و نصب وراه اندازی دو خط تولید پیستون های بنزینی و یک خط دیزلی جدید و گام برداشتن برای رسیدن به تولید ۵ میلیون پیستون در سال
- ساخت و راه اندازی ۸ واحد جدید ریخته گری برای تامین پیستون خام خطوط
- تولید ۸ تیپ پیستون جدید در راستای تکمیل سبد محصولات شرکت

:۱۳۹۵_۱۳۹۶

- نصب و راه اندازی کوره پیش ذوب با ظرفیت ده تن در هر شیفت کاری
- ـ نصب و راه اندازی دستگاه PART FORMER با ظرفیت تولید ده میلیون گژن پین در سال
- راه اندازی سالن ماشینکاری شاتون با ظرفیت ۱۲۰۰۰۰۰ عدد شاتون در سال

پروفایل شرکت

نام شرکت: شرکت تولیدی پیستون ایران (سهامی خاص)

برند: IPMCo

موقعیت مکانی: شمال غربی ایران-استان آذربایجان شرقی-شهر تبریز

نوع محصول: پیستون و گژن پین موتورهای بنزینی و دیزلی

سال تاسیس: ۱۳۵۳ هجری شمسی

مساحت کارخانه: ۸۴۰۰۰متر مربع

فضای مسقف: ۲۴۰۰۰مترمربع

تعداد کارکنان: ۵۹۶ نفر در داخل شرکت و ۲۹ نفر در دفتر مرکزی تهران

ظرفیت تولید: ۵ میلیون پیستون و گژن پین در سال

مالکیت: بخش خصوصی-گروه قطعات خودرو عظام(سهامی خاص)

ظرفیت های تولید

پیستون : ۵ میلیون عدد در سال

گژن پین : ۶ونیم میلیون عدد در سال

مجموعه پیستون و شاتون: ۲ میلیون در سال

استکان تاپیت: ۱ میلیون عدد در سال

شاتون : ۱,۲ میلیون در سال

ریخته گری : ۵ میلیون عدد در سال

رخداد های جدید شرکت تولیدی پیستون ایران در سال ۱۳۹۶ :

- **نصب و راه اندازی سالن ماشینکاری شاتون با ظرفیت ۱۲۰۰۰۰۰ شاتون در سال:** این سالن به صورت چهار خط مستقل برای تولید همزمان چهار نوع محصول طراحی شده که قابلیت تولید شاتون موتور های XU7- EF7- TU5- TU3- OHV- PK2 را دارا می باشد.

- **نصب و راه اندازی دستگاه PART FORMER** : این دستگاه که موجب تحول عظیمی در تولید گژن پین شده است در سال ۱۳۹۶ در سالن گژن پین راه اندازی شد. این دستگاه به تنهایی موجب حذف چندین پروسه زمان بر از چرخه تولید گژن پین گردیده و به تنهایی می تواند تا ده میلیون گژن پین در سال را تولید نماید.

:

- ***<u>بخش هایی از شرکت تولیدی پیستون ایران</u>***

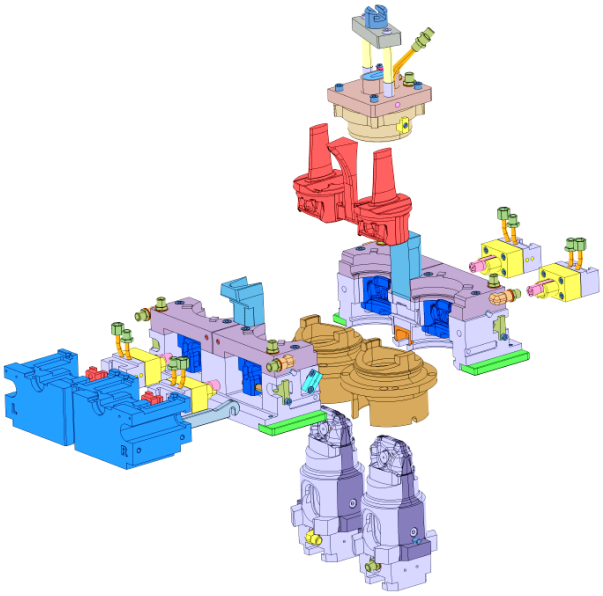
آزمایشگاه های شرکت تولیدی پیستون ایران (IPMCo) با بهره گیری از نیروی متخصص و مجرب و تجهیزات آزمایشگاهی مطابق با تکنولوژی روز دنیا نسبت به تست های مواد و قطعه مطابق با استانداردهای خودروسازان جهانی عمل نموده و به عنوان معتبرترین مرجع استانداردهای پیستون، گژن پین و رینگ در ایران خدمات خود را با کیفیت مطلوب ارایه می نماید که عبارتند از:

- آزمایشگاه کوانتومتری
- آزمایشگاه متالوژی
- آزمایشگاه شیمی
- مرکز اندازه گیری دقیق
- کنترل حین تولید
- کنترل نهایی

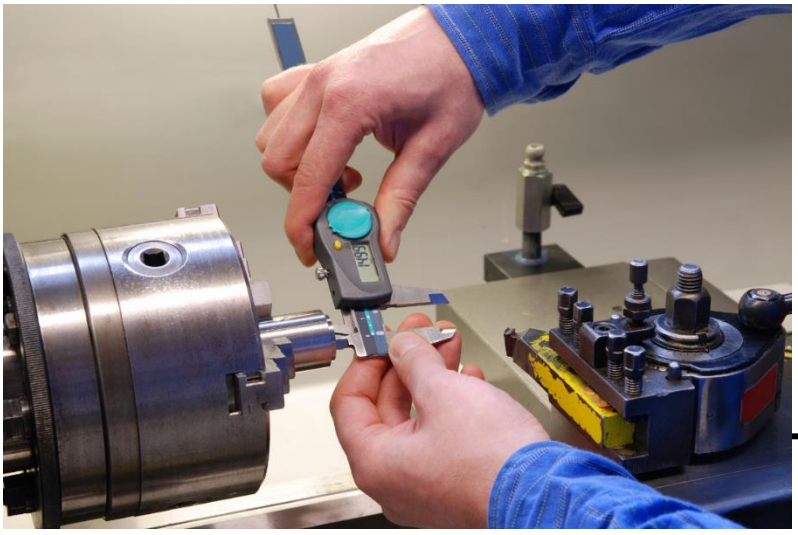
تحقیق و توسعه

توسعه روز افزون دانش بشری و نیاز فزاینده صنعت خودرو به طراحی و خلق ایده های جدید از چالش های مهم پیش روی واحد تحقیق و توسعه شرکت تولیدی پیستون ایران می باشد.

هدف از فعالیت های تحقیق و توسعه ، ابداع، خلاقیت ، نوآوری و افزایش دانش سازمانی بوده و حاصل فرایند آن با مدیریت اصولی و علمی دانش، تولید ارزش افزوده نموده و مزیت های رقابتی سازمان را روز به روز افزایش می دهد.



- طراحی انواع مختلف قالب های دیزلی و بنزینی با تکنولوژی های جدید
- طراحی و ساخت دستگاه های MG20 ریخته گری
- طراحی قالب موتورسیکلت
- طراحی و ساخت دستگاه MG17



- طراحی و ساخت تپت XU7
- طراحی قالب های پیستون های ECO FORM

فروش:

موفقیت ما در گرو رضایت مشتری می باشد.این بدان معنی است که در توزیع محصولات شرکت تولیدی پیستون ایران (**IPMCo**)، مشارکت همه ذینفعان شامل عمده فروشان، خرده فروشان، نمایندگان، تعمیرکاران و مصرف کنندگان نهایی در بازار **AM** ونیز خودروسازان در بازار **OEM**

، موجب شکل گیری و تکوین فعالیت فروش می گردد.

تحقیقات بازاریابی جهت شناسایی انتظارات مشتری ، تولید بر اساس نیاز بازار و ایجاد روش های سیستماتیک در انبار داری ، لجستیک، شبکه توزیع بسته بندی، فروش، تبلیغات **Sales Promotion**، برگزاری سمینارهای تخصصی، حضور در نمایشگاه های داخلی و بین المللی و تکنیک های مدرن در بازاریابی و فروش، موجب گردیده تا جایگاه شرکت تولیدی پیستون ایران (**IPMCo**) به عنوان رهبر بازار **OEM & AM** ایران تثبیت گردد . همچنین صادرات به کشورهای حاشیه خلیج فارس، اروپا، آفریقا و روسیه نیز هدف شرکت برای توسعه در زنجیره تامین جهانی است.

خدمات پس از فروش :

از جمله مهمترین اهداف هر سازمان پویا ارایه خدمات فراتر از انتظارات مشتری می باشد.

در این راستا و با توجه به حساسیت قطعات شرکت تولیدی پیستون ایران(**IPMCo**) لزوم ارایه خدمات پس از فروش بیش از پیش احساس شده و رضایت مشتری در سر لوحه تدوین استراتژی این سازمان قرار گرفته است.

گواهینامه های کیفی:

کنترل کیفیت شرکت تولیدی پیستون ایران (IPMCo) به منظور کسب رضایت مشترایان و ذینفعان با افرادی متخصص و امکاناتی گسترده با همکاری نزدیک واحد های تولیدی، R&D، و فروش موفق به ارائه محصولات با کیفیتی در سطح جهانی شده است که نتیجه آن دریافت گواهینامه های کیفی از سازمان های معتبر داخلی و خارجی بوده که نمونه ای از آنها قابل ملاحظه می باشد:

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Quality Management System**.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	065396 QM08
Valid from	2016-11-13
Valid until	2018-09-14
Date of certification	2016-11-13

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

DQS GmbH

Frank Graichen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Environmental Management System**.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 14001 : 2004

Certificate registration no.	065396 UM
Valid from	2016-08-16
Valid until	2019-08-19
Date of certification	2016-08-16

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

DQS GmbH

Frank Graichen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a
Occupational Health and Safety Management System.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

BS OHSAS 18001 : 2007

Certificate registration no.	065396 BSOH
Valid from	2016-11-13
Valid until	2019-11-12
Date of certification	2016-11-13

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

DQS GmbH

Frank Gralchen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St. 1587698411 Teheran - Iran

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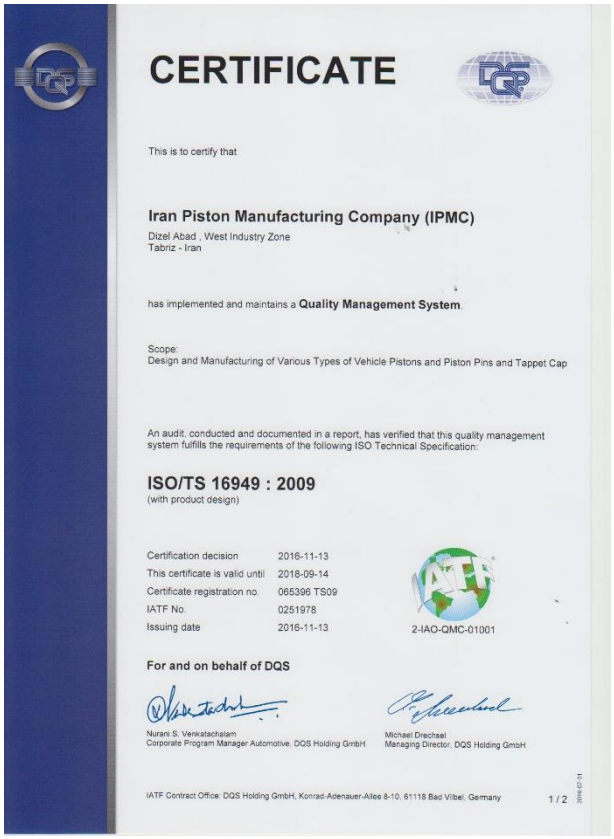


CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Quality Management System.**

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

An audit, conducted and documented in a report, has verified that this quality management system fulfills the requirements of the following ISO Technical Specification:

ISO/TS 16949 : 2009
(with product design)

Certification decision	2016-11-13
This certificate is valid until	2018-09-14
Certificate registration no.	065396 TS09
IATF No.	0251978
Issuing date	2016-11-13

2-IAO-QMC-01001

For and on behalf of DQS

Nurani S. Venkatachalam
Corporate Program Manager Automotive, DQS Holding GmbH

Michael Drechsel
Managing Director, DQS Holding GmbH

IATF Contract Office: DQS Holding GmbH, Konrad-Adenauer-Allee 8-10, 61118 Bad Vilbel, Germany

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)

Dizel Abad , West Industry Zone
Tabriz - Iran
Head Office: No. 77, Opposite of Sepehr Park,
Sepehr St., Derakhti St., Shahrak-E-Gharb
Tehran - Iran

has implemented and maintains a **Integrated Quality, Environmental, Occupational Health and Safety Management System.**

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

An audit, documented in a report, has verified that this integrated management system fulfills the requirements of the following standards:

ISO 9001 2008 edition
BS OHSAS 18001 2007 edition
ISO 14001 edition 2004
ISO/TS 16949 2009 edition

The validity of this Certificate is based on the validity of the DQS Certificates issued or each standard separately, With the following registration numbers:

065396 QM08 (Certificate DIN EN ISO 9001:2008)
065396 UM (Certificate DIN EN ISO 14001: 2004)
065396 BSOH (Certificate BS OHSAS 18001:2007)
065396 TS09 (Certificate ISO/TS 16949:2009)

DQS CFS GmbH
German Organization for Sustainability

Dr. Sied Sadek
Managing Director (CEO)

Certification Body: DQS CFS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St. 1587698411 Teheran - Iran

اطلاعات محصول

کاتالوگ محصولات شامل اطلاعات زیر می باشد:

آرم شرکت

تولید کننده

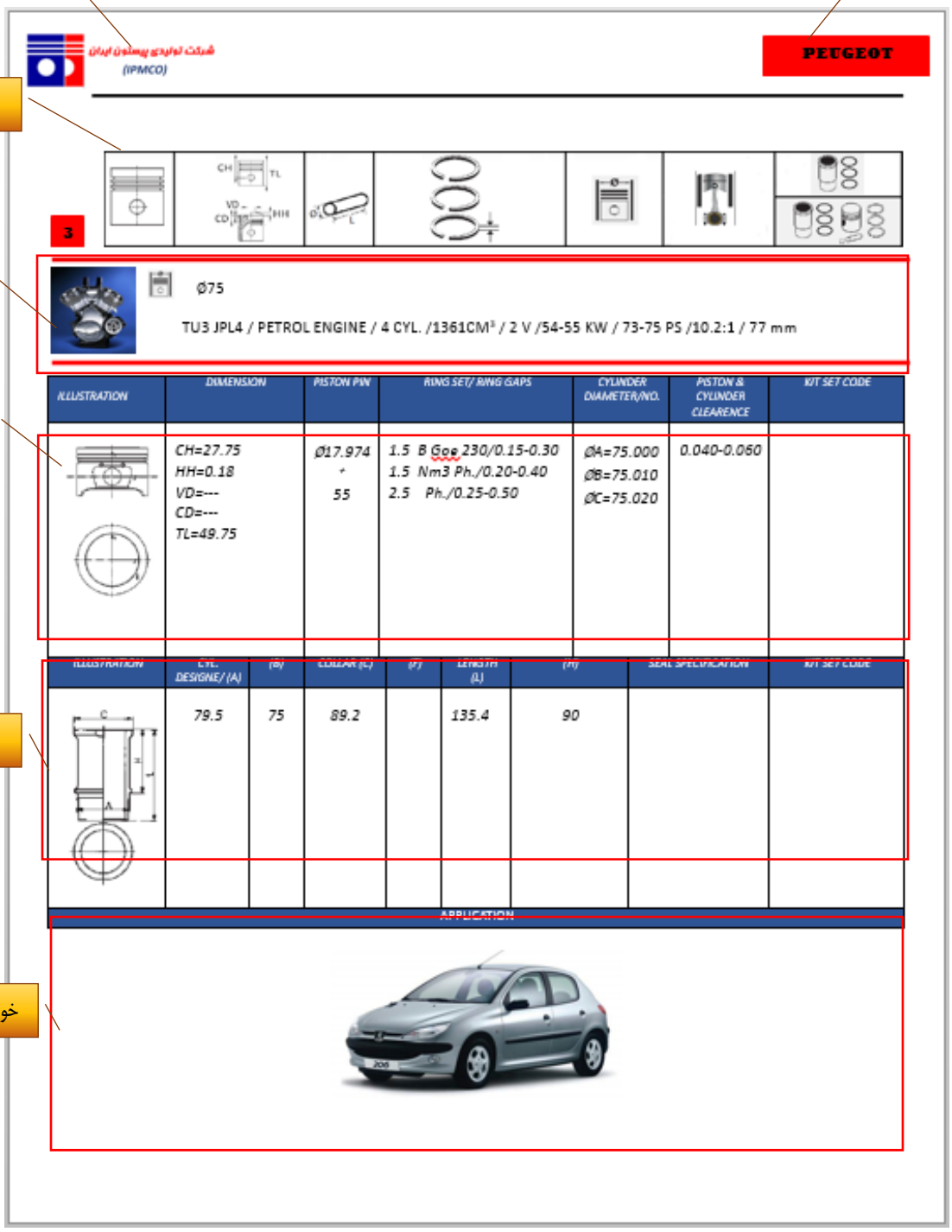
نقشه شماتیک

توضیحات موتور

توضیحات پیستون

توضیحات بوش

خودروهای قابل استفاده


شرکت تولیدی پیستون ایران
(IPMCO)

PEUGEOT

3

Ø75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM³ / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=27.75 HH=0.18 VD=--- CD=--- TL=49.75	Ø17.974 + 55	1.5 B Gge 230/0.15-0.30 1.5 Nm3 Ph./0.20-0.40 2.5 Ph./0.25-0.50	ØA=75.000 ØB=75.010 ØC=75.020	0.040-0.060	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	CLEAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	79.5	75	89.2		135.4	90		

APPLICATION

توضیحات مربوط به بخش موتور

Engine Spec.

شرکت تولیدی پیستون ایران (IPMCO)

PEUGEOT

Engine model	number of cylinders		volume		Co. rate	power	power
XU7 JP	4	83*81.4	1762	2	9.25:1	73-76	99-103
XU9 CTR	4	83*88	1905	2	10.2:1	93-95	126-129
TU3 JP	4	75*77	1361	2	10.2:1	54-55	73-75
TU5 JP4	4	78.5*82	1587	2	11:1	80	109

Ø75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM³ / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

توان موتور بر حسب کیلو وات

تعداد سوپاپ ها

تعداد سیلندر

توان موتور بر حسب

قطر اسمی سیلندر

نام موتور

نوع سوخت مصرفی موتور

حجم سیلندر

نسبت تراکم

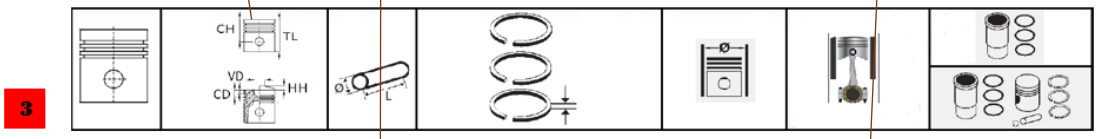
کورس پیستون

مشخصات پیستون

شماتیک پیستون

مشخصات گژن پین بر اساس قطر و طول

گژ بین پیستون و سیلندر



3

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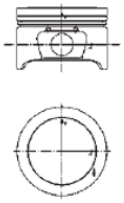
TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM^3 / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=27.75 HH=0.18 VD=--- CD=--- TL=49.75	Ø17.974 * 55	1.5 B Goe 230/0.15-0.30 1.5 Nm3 Ph./0.20-0.40 2.5 Ph./0.25-0.50	ØA=75.000 ØB=75.010 ØC=75.020	0.040-0.060	

قطر سیلندر

ضخامت رینگ

شماتیک پیستون

نوع رویه کاری

کد محصول

CH= ارتفاع کمپرسیون
HH= ارتفاع برامدگی سطح پیستون
VD = عمق سوپاپ
CD = عمق محفظه احتراق
TL = طول کل

گپ دهانه رینگ هنگام نصب

مشخصات مربوط به بوش

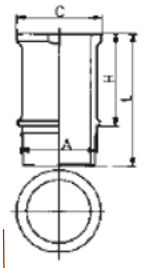
Fire Protection Rim

قطر داخلی

طول کلی

ارتفاع نشیمنگاه با یقه

Ø-قطر طراحی

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	79.5	75	89.2		135.4	90		
APPLICATION								

نقشه شماتیک بوش

مشخصات اورینگ

خودروهای قابل استفاده

English

Index Page

It's been over 30 years that the products of Iran Piston Manufacturing Company (IPMCo), have been the symbol of industrial and technological development of Iran's fabrication's industry and by creating values such as: creativity, job opportunity, commitment to customer, respecting human values and efforts toward achieving highest level of efficiency have been the main provider of piston for Iran's automotive industry.

Participation and constructive cooperation amongst beneficiaries of IPMCo and customers have made a permanent progression and success in the development of process and product which have been led to a leadership position in the market of OEM & AM in the country. Currently in contemplation of globalization, the strategy of IPMCo is to preserve authority based on knowledge, market leadership, entrance to the global supply of pistons and present efficient solution for future automobile engine in the country and the world.

COMPANY SHORT STORY

1973:
• Factory built through joint investment and technical knowledge of Mahle in Tabriz, Iran

1974:
• IPMCo launched as the first piston manufacturer in Iran

1979:
• Supplied Iran Khodro and produced Peykan pistons
• Supplied Idem and manufactured diesel piston for Benz engines

1981:
• Completed unfinished projects and achieved nominal production capacity

1993:
• Privatization and formation of company's production and business development projects

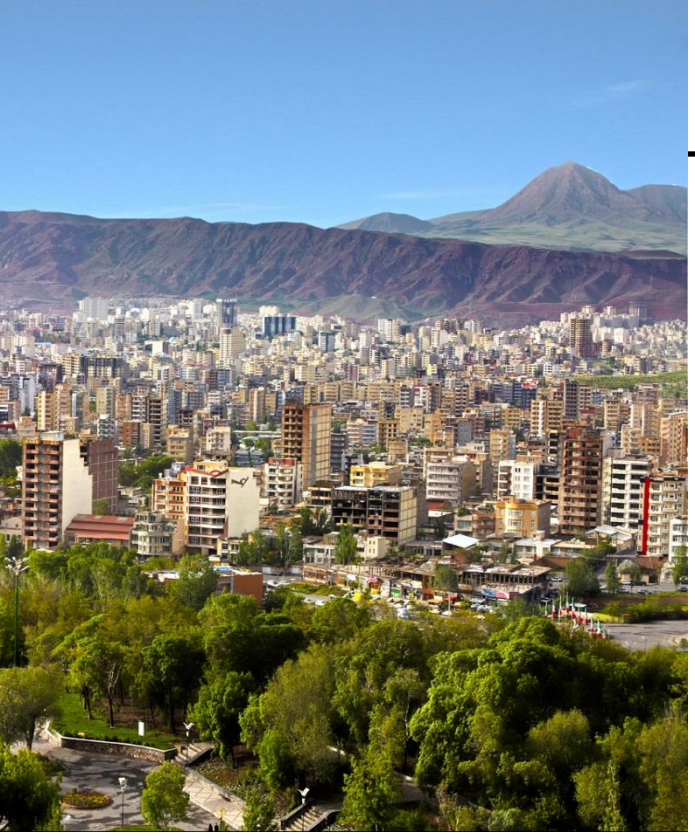
1996:
• R&D Department established
• Production capacity increased to 800 thousand gasoline pistons and 200 thousand diesel pistons
• Diversity of product increased from 5 to 10 types

1998:
• Tool making workshop expanded and mold making technology achieved

1999:
• production capacity increased to 2 million units annually
• Kia Pride piston produced and Mega Motor Company supplied (SAIPA)

2002:
• Piston Pin manufacturing factory (diesel & petrol) launched with an annual capacity of 5 million units

2003:
• 3 new CNC automated production lines from Germany installed and production capacity increased to 5 million units annually.



2004:

Automatic systems for final control utilized.

2006:

• Coating machinery using Silkscreen method and Ultrasonic machineries launched
• Lighter and state-of-the-art design pin and piston for more engine power and acceleration manufactured
• Lighter Peykan piston with new design (without struts) produced deceasing fuel consumption by 20%
• Super alloy with Titanium, Zirconium, and Vanadium to decrease abrasion and increase piston life span used

2007:

• Variety of gas, gasoline, and diesel pistons with Euro 2 standards manufactured
• 150 mm diameter piston for all kinds of locomotive and ship diesel engines produced

2008:

The modification of production technology for diesel type piston pin with gold extrude method .

Activation of connecting rod and piston assembly for gasoline type automobile.

Installation and activation of new lines in order to produce advanced pistons such as Peugeot 206.

2009:
Completion of national engine project and taking action to design and fabricate piston for similar engine with gas oil fuel.
Participation in MEGA MOTOR(S81) national project in field of designing and fabricating pistons, piston pins and ring of this engine.
Participation of pistons: Volvo N12, f12-Howo.
Receiving letter of commendation and statue of distinguished protector of the environment in east Azerbaijan.

2014:
Addition of grinding line to the piston pin unit and increase of production capacity to 7.5 million piston pin per year.
Purchase, installation and activation of two gasoline pistons production line, one new diesel line and set target for archiving production of ten million pistons per year.
Fabrication and activation of eight (8) new casting units for provision of raw piston production lines.
Production of eight (8) new piston type toward completing company's basket of products.
2016-2017:
Installing pre melting furnace in casting workshop with capacity of 10 ton per a shift
Purchasing and operating PARTFOMER machine in piston pin work shop that increase the capacity of net piston pin production to over than 10 million.
Activation of con rod producing line that can produce different con rods like XU7-TU5-EF7-OHV-PK2-TU3 …
Installing and activation of XU7 tappet producing line with capacity of 1000000

- COMPANY PROFILE

Company Name: Iran Piston Manufacturing Company
Brand: IPMCo
Geographical Location: Tabriz, Eastern Azerbaijan Province (North West of Iran)
Products: Pistons & Piston pins for petrol & diesel engines
Year established: 1973
Area: 84000 Sq.
Roofed space: 24000 Sq.
Employees: 596 IN PRODUCTION AND 29 EMPLOYEE IN MAIN OFFICE
Production capacity: 5 million pistons & 5 million pins annually
Ownership: Private Sector – Ezam Automotive Parts Group (PJS)

PRODUCTION CAPACITY

CASTING LINE: 5000000
MACHINING LINE: 5000000
PISTON PIN LINE: 6500000
ASSEMBLE OF PISTON AND CON ROD: 2000000
CON ROD LINE: 1200000
TAPPET LINE: 1000000

NEW EVENTS IN 2017 . . .

Connecting rod line activation:

Connecting rod production workshop consists of 4 line that can produce different con rods like XU7- EF7- TU3- TU5-PK2 ,…

PART FORMER:

Part former is a cold forging machine that can produce plenty kind of piston pin with diameter 7mm to 32 mm. This machine can produce over than 10 million net pin yearly.

Some parts of IPMCo:

Laboratory & Testing Equipment:

The laboratories of IPMCo have been operating and testing their material and parts by applying experienced experts and laboratory equipment in accordance with up to date global automotive manufacturers and have provided their services with high quality as one of the most credible resource of standards for pistons, piston pin and rings in IRAN which include:

- Quantum metric laboratory
- Metallurgical laboratory
- Chemistry laboratory
- Center of precision measurement
- Control while processing
- Ultimate control

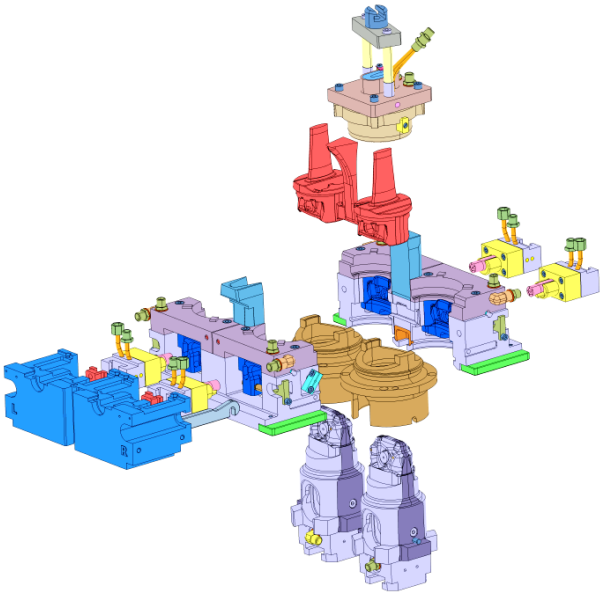
Final control:

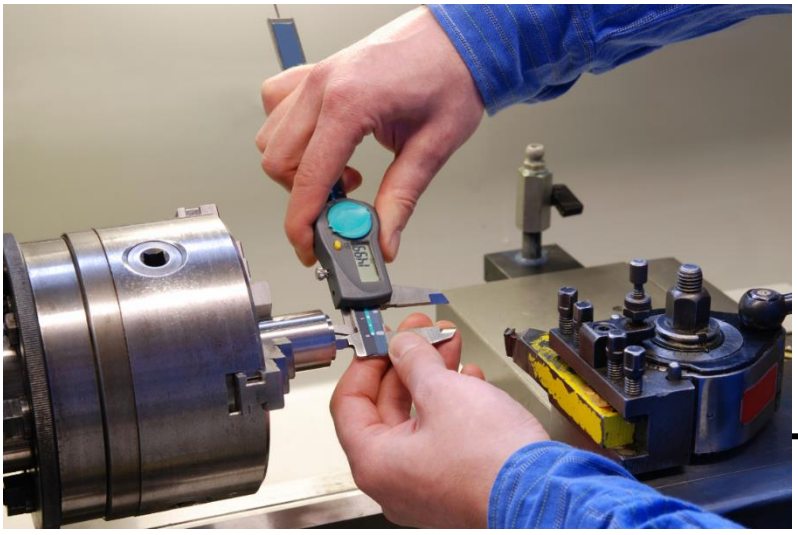
All products go through dimensional and geometrical control processes.

Research & Development

Daily increasing development of human knowledge and multiplier needs of automotive industry to design and create new ideas are some of the most important challenges in the progress of R&D department in the company.
The goals of R&D activities are : innovation , creativity and elevating organizational knowledge which along with scientific and pragmatic management of knowledge have created added values and increased competitive advantages of the organization day in day out.

- Designing new molds for different kinds of pistons
- Designing MG@) automatic casting machine.
- Designing motorcycle piston mold.





- Designing different pistons tappet like XU& & OHV
- Designing eco form pistons mold.

Sale:

our success is our customer satisfaction which means in the products distribution of IPMCo, participation of all beneficiaries includes; whole sellers, retail sellers, agents, repairperson & ultimate consumers in AM and also automotive manufacturers in OEM have caused formation of sale activities.

Market research has caused IPMCo to be confirmed as OEM & AM market leader in order to identify customer's expectation, producing based on market needs and develop systematic methods in warehouse management ,logistic, network of distribution, packaging, sale, advertisement, sales promotion, conducting specialized seminars, attenuating to national and international exhibitions and modern techniques in sales and marketing.

Also export to countries in the rim of Persian Gulf, Europe, Africa and Russia are markets of IPMCo products for development in the global supply chain.

After sale support and service:

One of the most important goals of any dynamic organization is presenting services beyond customers' expectations.in order to do this and by considering the sensitivity of IPMCo parts, the necessity of presenting after sale services has felt more than ever and the customer satisfaction has been set on top of this organization's strategy.

Certificates of quality

The quality control of IPMCo for the purposes of customers and beneficiaries satisfaction with the help of expert individuals, extensive facilities and close cooperation of production units, R&D and sales, has been successful to provide high quality products in the world which resulted to receive the following quantitative certificates from viable domestic and foreign organizations below:

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a
Occupational Health and Safety Management System.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

BS OHSAS 18001 : 2007

Certificate registration no. 065396 BSOH
Valid from 2016-11-13
Valid until 2019-11-12
Date of certification 2016-11-13

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

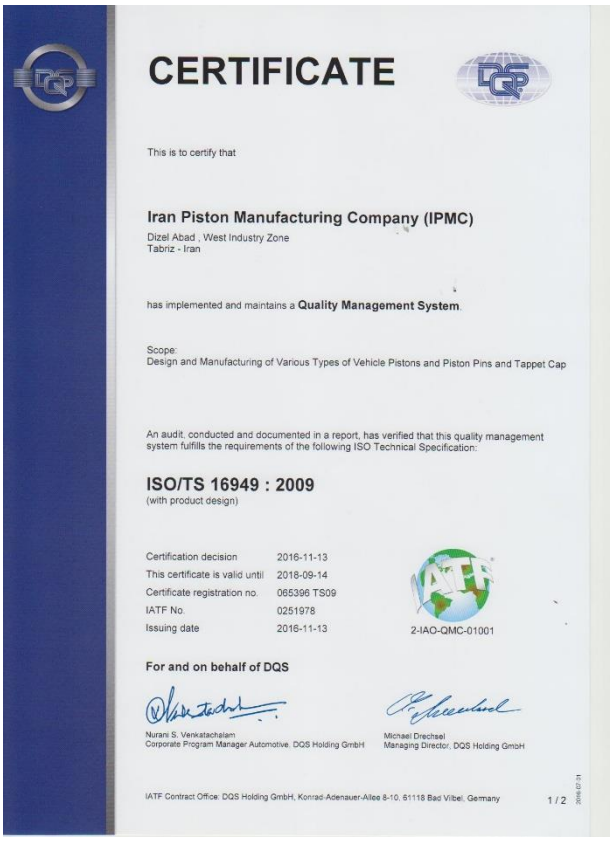
DQS GmbH

Frank Graichen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

IQNet

1 / 2



CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Quality Management System.**

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

An audit, conducted and documented in a report, has verified that this quality management system fulfills the requirements of the following ISO Technical Specification:

ISO/TS 16949 : 2009
(with product design)

Certification decision 2016-11-13
This certificate is valid until 2018-09-14
Certificate registration no. 065396 TS09
IATF No. 0251978
Issuing date 2016-11-13

2-IAO-QMC-01001

For and on behalf of DQS

Nurani S. Venkatachalam
Corporate Program Manager Automotive, DQS Holding GmbH

Michael Drechsel
Managing Director, DQS Holding GmbH

IATF Contract Office: DQS Holding GmbH, Konrad-Adenauer-Allee 8-10, 61118 Bad Vilbel, Germany

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Quality Management System**.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	065396 QM08
Valid from	2016-11-13
Valid until	2018-09-14
Date of certification	2016-11-13

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

DQS GmbH

Frank Graichen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)
Dizel Abad , West Industry Zone
Tabriz - Iran

has implemented and maintains a **Environmental Management System**.

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 14001 : 2004

Certificate registration no.	065396 UM
Valid from	2016-08-16
Valid until	2019-08-19
Date of certification	2016-08-16

DAkkS Deutsche Akkreditierungsstelle D-ZM-16074-01-00

DQS GmbH

Frank Graichen
Managing Director

Certification Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

1 / 2

CERTIFICATE

This is to certify that

Iran Piston Manufacturing Company (IPMC)

Dizel Abad , West Industry Zone
Tabriz - Iran
Head Office: No. 77, Opposite of Sepehr Park,
Sepehr St., Derakhti St., Shahrak-E-Gharb
Tehran - Iran

has implemented and maintains a **Integrated Quality, Environmental, Occupational Health and Safety Management System.**

Scope:
Design and Manufacturing of Various Types of Vehicle Pistons and Piston Pins and Tappet Cap

An audit, documented in a report, has verified that this integrated management system fulfills the requirements of the following standards:

ISO 9001 2008 edition
BS OHSAS 18001 2007 edition
ISO 14001 edition 2004
ISO/TS 16949 2009 edition

The validity of this Certificate is based on the validity of the DQS Certificates issued for each standard separately. With the following registration numbers:

065396 QM08 (Certificate DIN EN ISO 9001:2008)
065396 UM (Certificate DIN EN ISO 14001: 2004)
065396 BSOH (Certificate BS OHSAS 18001:2007)
065396 TS09 (Certificate ISO/TS 16949:2009)

DQS CFS GmbH
German Organization for Sustainability

Dr. Sied Sadek
Managing Director (CEO)

Certification Body: DQS CFS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main
Administrative Office: DQS Iran, 1201 Unit , 12 Floor, No. 55, Daryaye Noor Building, Sarafraz St., Shahid Beheshti St, 1587698411 Teheran - Iran

Product Data

The catalogue pages consist of the information blocks listed below:

Supplier

Manufacturer

Pictogram line

Engine Line

Piston Line

Cylinder liner Line

Application Line

شرکت تولیدی پیستون ایران
(IPMCO)

PEUGEOT

3

Ø75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM³ / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=27.75 HH=0.18 VD=--- CD=--- TL=49.75	Ø17.974 + 55	1.5 B Gge 230/0.15-0.30 1.5 Nm3 Ph./0.20-0.40 2.5 Ph./0.25-0.50	ØA=75.000 ØB=75.010 ØC=75.020	0.040-0.060	

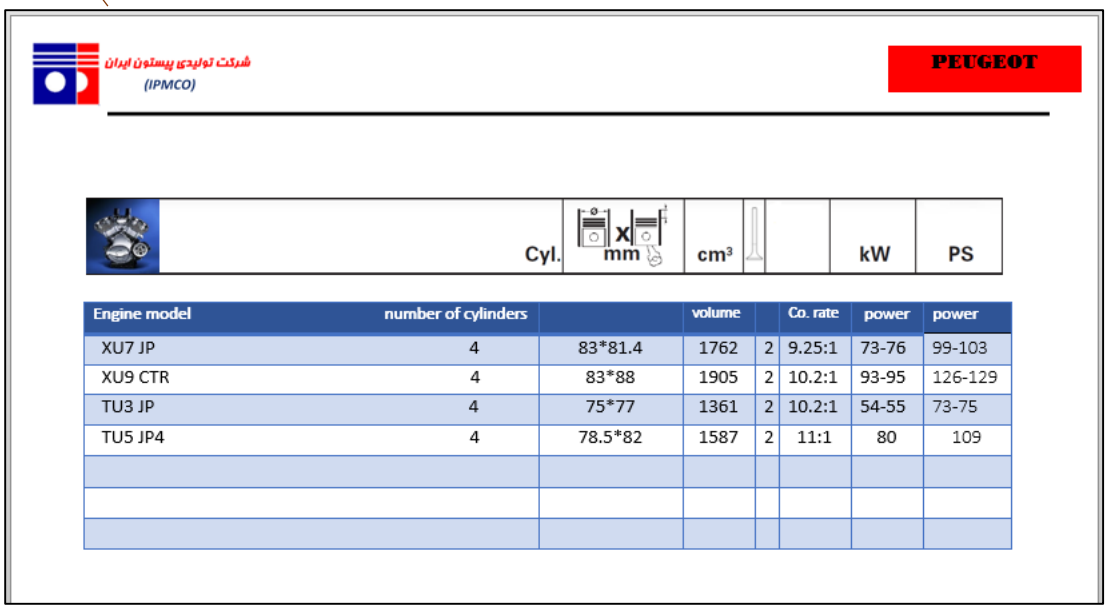
ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	79.5	75	89.2		135.4	90		

APPLICATION

Engine Index

Every manufacturer information starts with two comprehensive indices serving as search support tools and the engine destination are sorted in ascending order and alphanumerically:

Engine Spec.



Engine model	number of cylinders		volume		Co. rate	power	power
XU7 JP	4	83*81.4	1762	2	9.25:1	73-76	99-103
XU9 CTR	4	83*88	1905	2	10.2:1	93-95	126-129
TU3 JP	4	75*77	1361	2	10.2:1	54-55	73-75
TU5 JP4	4	78.5*82	1587	2	11:1	80	109

Engine Power (KW)

Numbers of Valves

Numbers of Cylinders

Engine Power (HP)

Cylinder-Ø-nominal

Ø75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM³ / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

Engine Name

Stroke

Type of Engine fuel

Compression rate

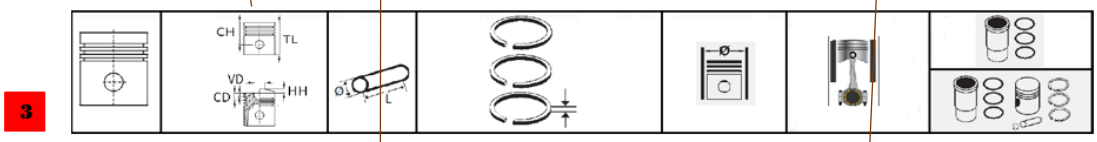
Swept volume

Piston Characteristics:

Piston dimensions schematic

Piston pin diameter
Piston pin Length

Piston and Cylinder Gap



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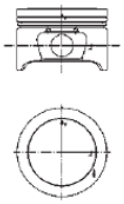
Ø75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM^3 / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=27.75 HH=0.18 VD=--- CD=--- TL=49.75	Ø17.974 * 55	1.5 B Goe 230/0.15-0.30 1.5 Nm3 Ph./0.20-0.40 2.5 Ph./0.25-0.50	ØA=75.000 ØB=75.010 ØC=75.020	0.040-0.060	

Cylinder

Ring Height

Piston illustration

Surface coating

Kit set Code

CH= compression height
HH= crown camber
VD = valve packet depth
CD = bowl depth
TL = total length

Ring installation gaps

Cylinder liner and kit set characteristics are shown below:

Fire Protection Rim

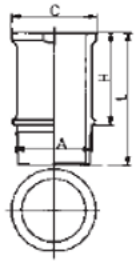
Inner diameter-Ø

Total Length

Collar Height

Fitting Diameter-Ø

Kit set code

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	79.5	75	89.2		135.4	90		
APPLICATION								

Cylinder liner Illustration

Seal Specifications

Cars used this Piston

Product Information (Piston)

Through the transfer of force produced by the combustion of fuel in the upper crest, piston, as engine's heart, moves the connecting rod and then the crankshaft. Resistance against extreme heat in combustion chamber and also against the abrasion resulting from continuous and fast movement of piston in cylinder makes the design and production of this part so important that it requires advanced technological knowledge and technology. Factors including closed tolerance, crest geometrical shape, pin hole and piston body (Ovality) as well as machining accuracy (in micron) requires provision of special machinery, molds, equipment's and skilled workforce. This has been made possible by broad investment in IPMC.

Piston Pins: Utilizing all equipment and machineries required to manufacture pin and enjoying UKM license, IPMCo is the first and only producer of standard pins in Iran. Pins with less than 35 mm in diameter are produced using extrusion method and those of higher diameters are manufactured through machining and extrude method and through procedures as cutting, pressing, phosphate, temper processing, grinding, and super finishing.

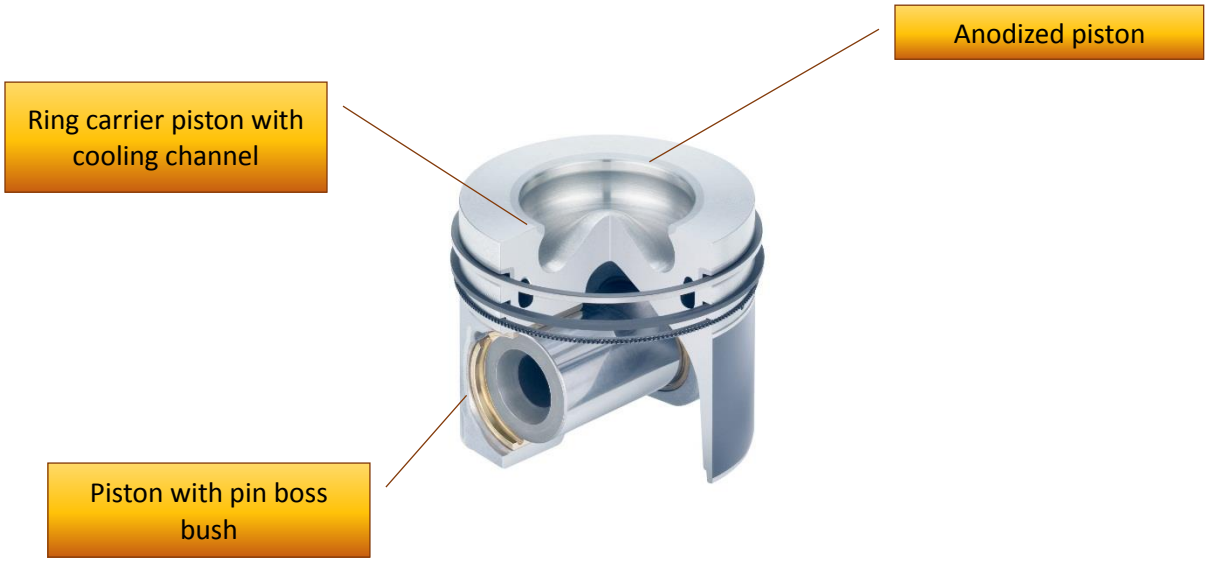
Design features of IPMCO products

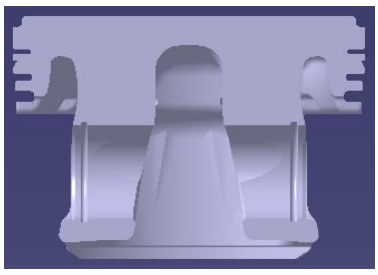
Here are some of the new types of piston which have been produced in IPMCo:

● Cast full skirt piston

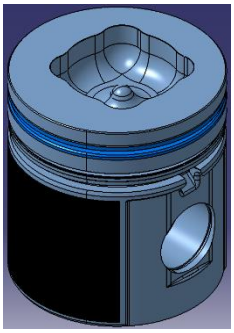
● Ring belt piston

● Segment strip piston

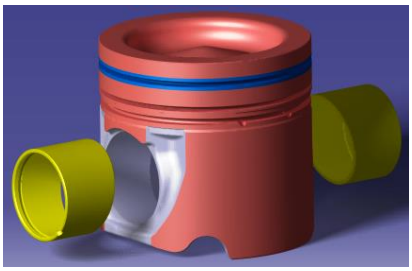




● Eco form piston



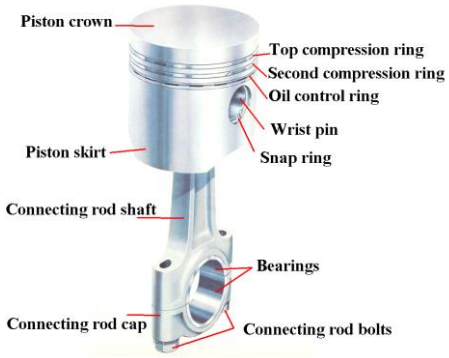
●New coating method



●pin bush piston

Piston:

A piston is a component of reciprocating engines, reciprocating pumps, gas compressors and pneumatic cylinders, among other similar mechanisms. It is the moving component that is contained by a cylinder and is made gas-tight by piston rings. In an engine, its purpose is to transfer force from expanding gas in the cylinder to the crankshaft via a piston rod and/or connecting rod. In a pump, the function is reversed and force is transferred from the crankshaft to the piston for the purpose of compressing or ejecting the fluid in the cylinder. In some engines, the piston also acts as a valve by covering and uncovering ports in the cylinder wall.



Internal combustion engines

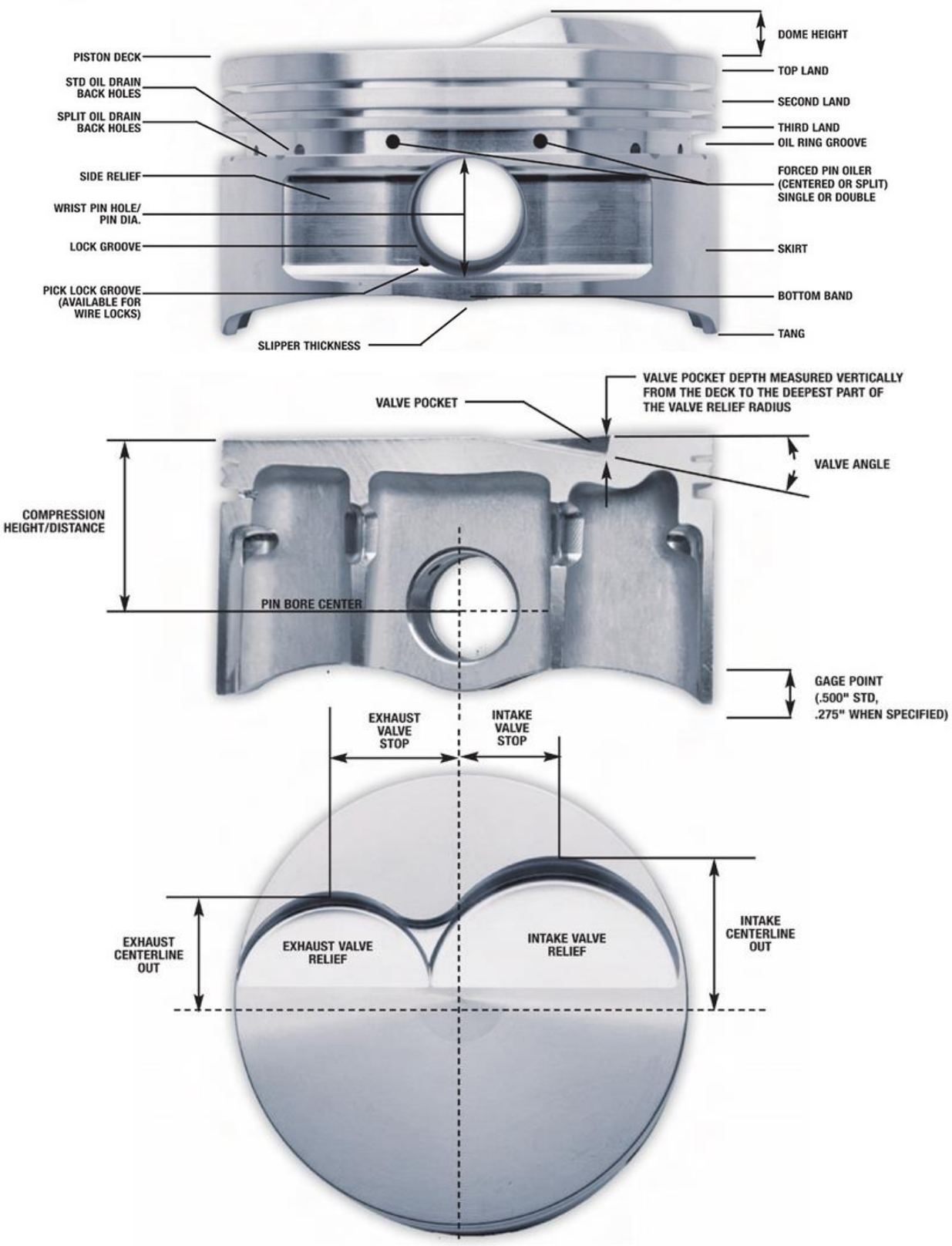
An internal combustion engine is acted upon by the pressure of the expanding combustion gases in the combustion chamber space at the top of the cylinder. This force then acts downwards through the connecting rod and onto the crankshaft. The connecting rod is attached to the piston by a swiveling gudgeon pin . This pin is mounted within the piston: unlike the steam engine, there is no piston rod or crosshead (except big two stroke engines).

The pin itself is of hardened steel and is fixed in the piston, but free to move in the connecting rod. A few designs use a fully floating' design that is loose in both components. All pins must be prevented from moving sideways and the ends of the pin digging into the cylinder wall, usually by circlips.

Gas sealing is achieved by the use of piston rings. These are a number of narrow iron rings, fitted loosely into grooves in the piston, just below the crown. The rings are split at a point in the rim, allowing them to press against the cylinder with a light spring pressure. Two types of ring are used: the upper rings have solid faces and provide gas sealing; lower rings have narrow edges and a U-shaped profile, to act as oil scrapers. There are many proprietary and detail design features associated with piston rings.

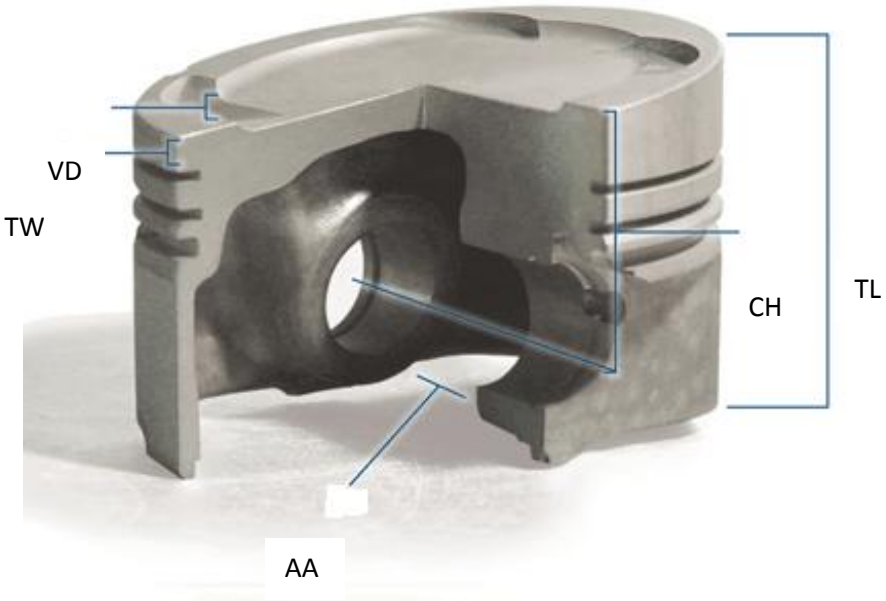
Pistons are cast from aluminum alloys. For better strength and fatigue life, some racing pistons may be forged instead. Early pistons were of cast iron, but there were obvious benefits for engine balancing if a lighter alloy could be used. To produce pistons that could survive engine combustion temperatures, it was necessary to develop new alloys such as alloy and Hiduminium, specifically for use as pistons.

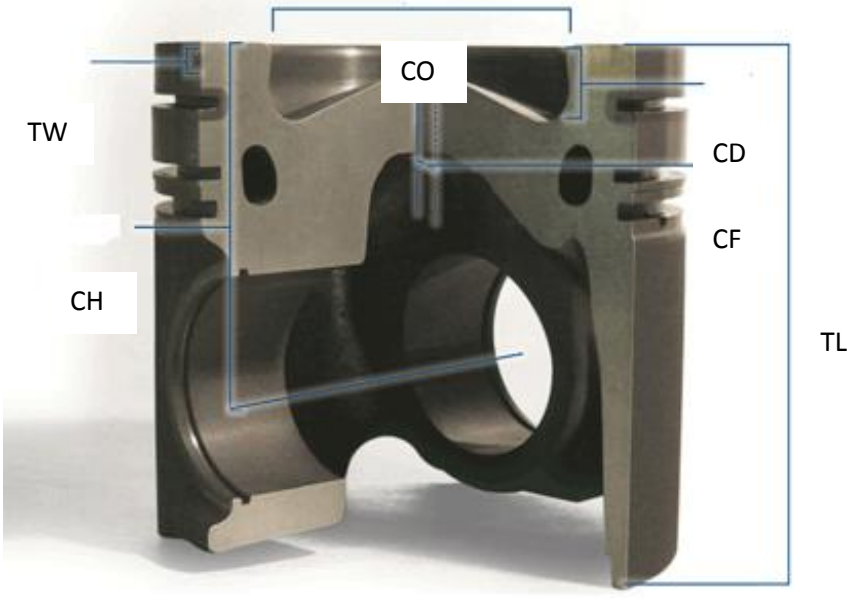
Piston Terminology:



Main Piston Dimensions:

AA..... Distance between bosses
TW..... Top land width
TL..... Total length
CH..... Compression height
CO..... Combustion chamber diameter
CD..... Combustion chamber depth
CF..... Combustion chamber offset
HH..... Dome height
VD..... Valve recess depth





IPMCo Original Piston Identification Marks

IPMCo mark on Packaging

Hologram that indicates the originality of product

The original mark

Barcode of product

Quality control

Piston Rings:

A **piston ring** is a split ring that fits into a groove on the outer diameter of a piston in a reciprocating engine such as an internal combustion engine or steam engine.
The three main functions of piston rings in reciprocating engines are:

1. Sealing the combustion chamber so that there is no transfer of gases from the combustion chamber to the crank.
2. Supporting heat transfer from the piston to the cylinder wall.
3. Regulating engine oil consumption

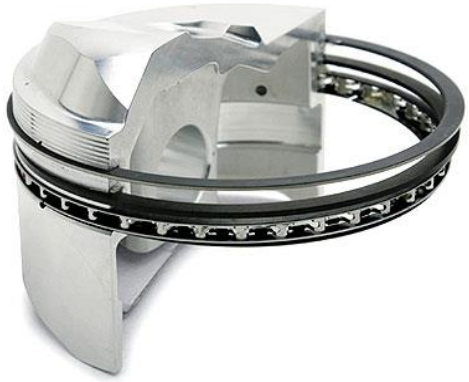
The gap in the piston ring compresses to a few thousandths of an inch when inside the cylinder bore. Piston rings are a major source of hint to identify if the engine is two stroke or four stroke. Three piston rings suggest that it is a four stroke engine while two piston rings suggest that it is a two stroke engine.

History

The split piston ring was invented by John Ramsbottom who reported the benefits to the Institution of Mechanical Engineers in 1854. It soon replaced the hemp packing hitherto used in steam engines. The use of piston rings at once dramatically reduced the frictional resistance, the leakage of steam, and the mass of the piston, leading to significant increases in power and efficiency and longer maintenance intervals.

Automotive

Piston rings have been an area of considerable focus and development for internal combustion engines. The needs of diesel engines and small piston-ported two-stroke engines have been particularly difficult. Piston rings may account for a considerable proportion of the total friction in the engine, as much as 24%. This high friction is a result of the design compromises needed to achieve good sealing and long lifetime. Sealing is achieved by multiple rings, each with their own function, using a metal-on-metal sliding contact.
Rings are also sprung to increase this contact force and maintain a close seal, either by the stiffness of the ring itself or by a separate spring behind the seal ring. It is important that rings float freely in their grooves within the piston, so that they can stay in contact with the cylinder. Rings binding in the piston, usually due to a build-up of either combustion products or a breakdown of the lubricating oil is a common cause of failure, especially for diesel engines.



Lubrication of piston rings is difficult and has been a driving force to improvements in the quality of motor oil. The oil must survive high temperatures and harsh conditions with a high-speed sliding contact. Lubrication is particularly difficult as the rings have an oscillating motion rather than continuous rotation, as for a bearing journal. At the limits of piston movement, the ring stops and reverses direction. This disrupts the normal oil wedge effect of a hydrodynamic bearing, leading to pronounced wear and the formation of a 'step' in the cylinder bore around the height of the upper ring. Noting that some sleeve valve engines suffered far less from such wear, complex designs such as a rotating cylinder have been considered, just to address this problem.

Most automotive pistons have three rings: The top two while also controlling oil are primarily for compression sealing (compression rings); the lower ring is for controlling the supply of oil to the liner which lubricates the piston skirt and the compression rings (oil control rings). At least two piston rings are found on most piston and cylinder combination. Typical compression ring designs will have an essentially
Rectangular cross section or a keystone (right angled trapezoidal) cross section. The periphery will then have either a barrel profile (top compression rings) or a taper Napier form (second compression rings or scraper rings). There are some taper faced top rings and on some old engines simple plain faced rings were used.
Oil control rings typically are of three types:

1. single piece cast iron
2. helical spring backed cast iron or steel
3. multi pieces steel

The spring backed oil rings and the cast iron oil rings have essentially the same range of peripheral forms which consist of two scraping lands of various detailed form. The multi piece oil control rings usually consist of two rails or segments (these are thin steel rings) with a spacer expander spring which keeps the two rails apart and provides the radial load.
The piston might be a fairly loose fit in the cylinder. If it were a tight fit, it would expand as it got hot and might stick tight in the cylinder. If a piston sticks (seizes) it could cause serious damage to the engine. On the other hand, if there is too much clearance between the piston and cylinder walls, much of the pressure from the burning gasoline vapor will leak past the piston (a condition known as blow-by) and into the crankcase, and the push on the piston from combustion will be much less effective in delivering power.

The various types of piston rings:

The various piston ring types and their symbols (same as used in the catalogue) are listed below. The additional symbols shown behind the column “ring width” describe a special treatment of the ring periphery (Cr e.g. for chrome-plating) or design feature (IW e.g. for internal step). All rings marked with the “TOP” sign have to be installed with this sign pointing to the piston crown.it is also recommended to install all other rings with the manufacturer’s sign pointing to the piston crown.

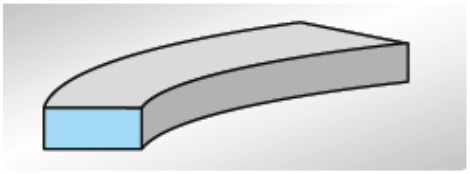
Additional symbols for piston ring executions:

SW = special material
IW = with internal step on top
IWF = with internal step at bottom
IF = with internal chamfer on top
IFU = with internal chamfer at bottom
Cr = chromium-plated periphery
Fe = Ferro-oxidized on all sides
P = phosphate on all sides
Sn = tin plated on all sides
Cu = Copper-plated on all sides
Mo = Molybdenum-filled periphery

Compression rings:

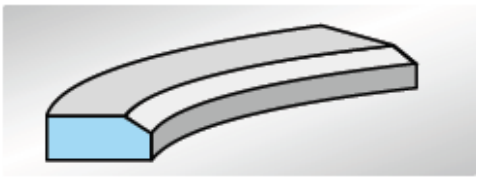
Top compression rings trap combustion gases and increase the combustion pressure and efficiency. They also play a major role in the heat transfer process between the piston and cylinder wall.

R => Rectangular ring

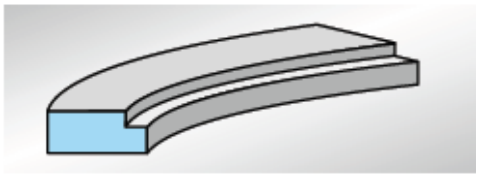


The term rectangular ring relates to rings with a rectangular cross section. Both ring sides are parallel to each other. This ring type is the simplest kind of compression ring and the most widespread.

Rectangular ring with Inside bevel

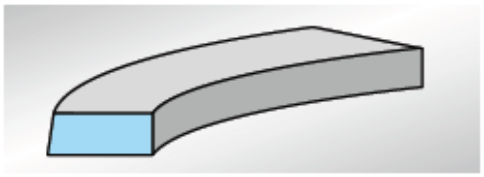


L=> Rectangular ring with Inside step



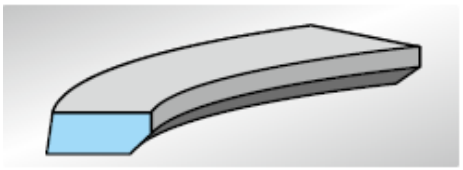
M => Taper faced ring

MEX =>Taper faced ring with expander spring

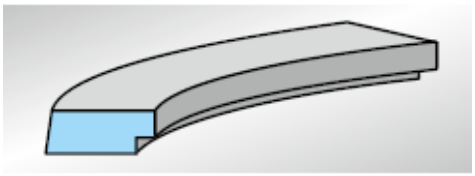


These rings have a double function. They support the compression ring when sealing off the gas and the oil control ring when regulating the oil film.

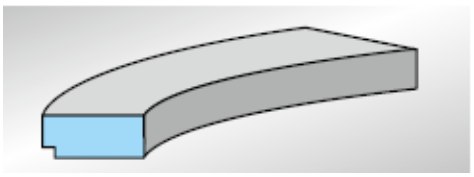
Taper faced ring with inside bevel at lower edge



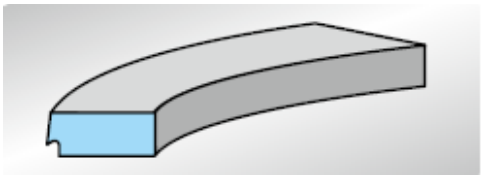
Taper faced ring with inside step at lower edge



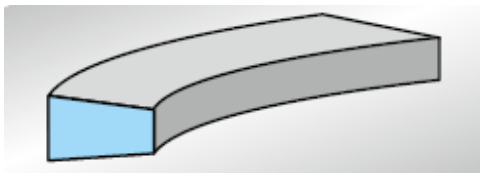
Napier ring



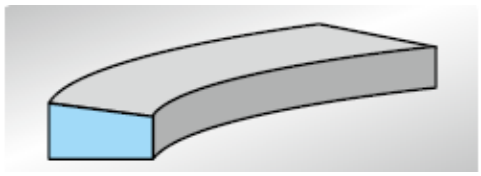
Taper faced Napier ring



T=> Key stone ring



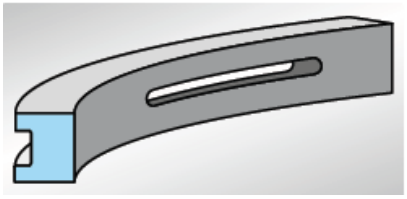
ET=> Half keystone ring



Oil control rings:

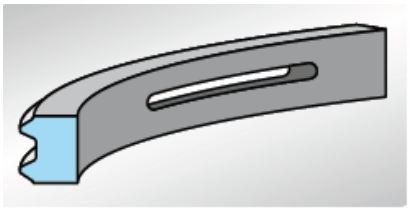
Oil rings distribute and regulate oil within the cylinder wall and help scrape it back into the crankcase. This is necessary to keep the cylinder wall lubricated with the cooler replacement oil, thereby aiding the heat transfer and lowering the friction between the piston and the cylinder.

S => Slotted oil control ring



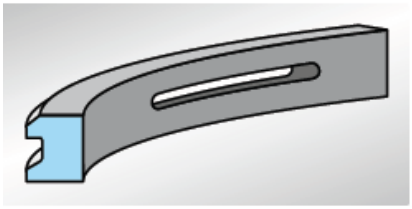
Basic version with rectangular scraping lands and slots for draining oil.

D => Beveled-edge oil control ring



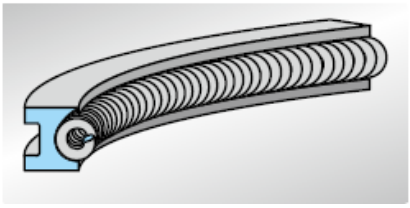
Compared to the slotted oil control ring, both edges of the sliding lands are chamfered to achieve an improved surface pressure.

G => Top beveled oil control ring



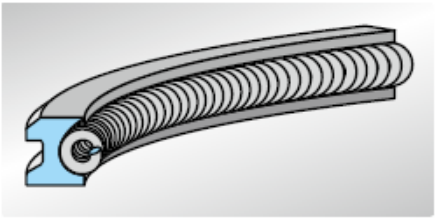
The lands of this ring are only chamfered on the combustion chamber side. This results in a stronger oil scraping effect during the downstroke of the piston.

SSF=> coil spring loaded slotted Oil control ring



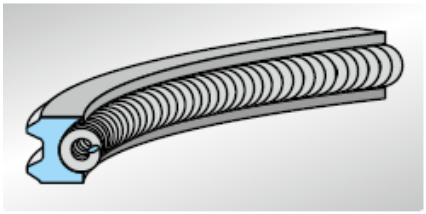
Basic version with better sealing effect than on a one-piece slotted oil control ring.

GSF => Coil spring loaded Top-beveled oil control ring



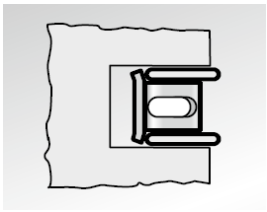
Same shape of sliding surface as a top-bevelled oil control ring, however with improved sealing effect.

DSF => Coil spring loaded Double-beveled oil control ring

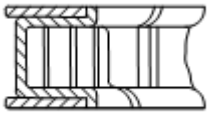


Same shape of sliding surface as a double-bevelled oil control ring, however with improved sealing effect. This is the most common oil control ring and can be used in any type of engine.

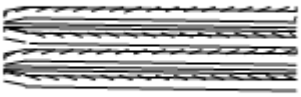
U => U-Flex-Ring



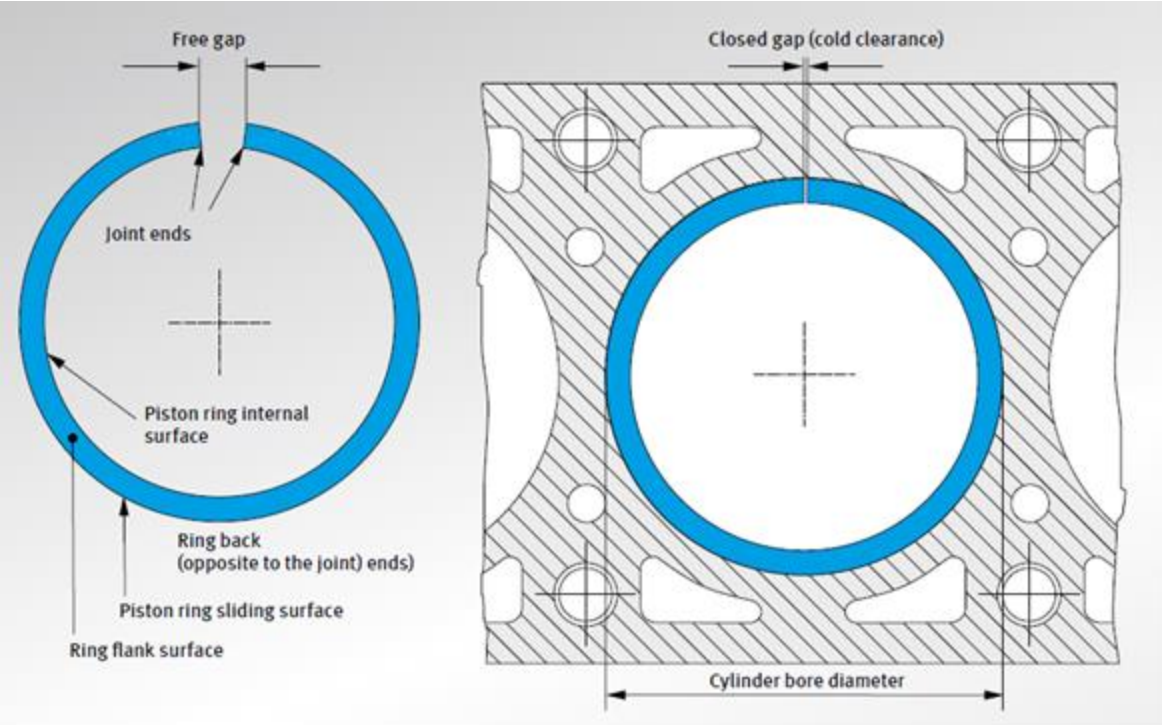
3S => MULTI-PIECE STEEL-RAIL OIL CONTROL RING



SL => LAMINATED STEEL RING



Ring gap which is shown in catalogue is closed gap



Cylinder liner:

The barrel or bore in which an engine piston moves back and forth may be an integral part of the cylinder block, or it may be a separate sleeve or liner. The first type, common in gasoline engines, has the disadvantage of not being replaceable. When excessive wear occurs in a block of this type, the cylinder must be rebored or honed. Reconditioning of this type cannot be repeated indefinitely and, in time, the entire block must be replaced. Another disadvantage is the inconvenience, especially in large engines, of having to remove the entire cylinder block from a ship in order to recondition the cylinders. For these reasons, diesel engines are constructed with replaceable cylinder liners. The cylinder liners we will discuss are representative of those used in diesel engines.

The material of a liner must withstand the extreme heat and pressure developed within the combustion space at the top of the cylinder and, at the same time, must permit the piston and its sealing rings to move with a minimum of friction. Close-grained cast iron is the material most commonly used for liner construction. (Steel, however, is sometimes used.) Some liners are plated on the wearing surface with porous chromium, because chromium has greater wear-resistant qualities than other materials. Also the pores in the plating tend to hold the lubricating oil and aid in maintaining the lubrication oil film that is necessary for reduction of friction and wear. Cylinder liners may be divided into two general classifications or types—dry or wet. The dry liner does not come in contact with the coolant. Instead, it fits closely against the wall of the cooling jacket in the cylinder block. With the wet liner, the coolant comes in direct contact with the liner. Wet liners may have a cooling water space between the engine block and liner, or they may have integral cooling passages. Liners with integral cooling passages are sometimes referred to as water-jacket liners.

Dry Liners

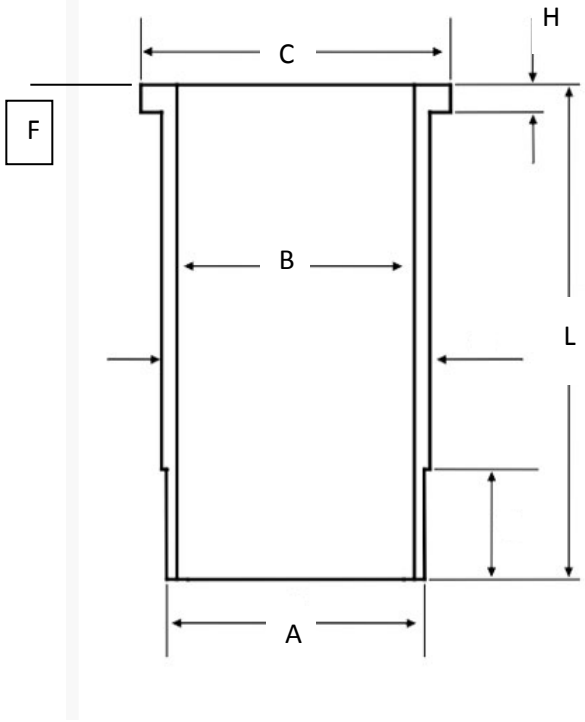
Dry liners have relatively thin walls compared with wet liners. Note that the coolant circulates through passages in the block and does not come in contact with the liner.

Wet Liners

In wet liners that do not have integral cooling passages, the water jacket is formed by the liner and a separate jacket which is a part of the block. A static seal must be provided at both the combustion and crankshaft ends of the cylinders to prevent the leakage of coolant into the oil pan sump, or combustion space. Generally, the seal at the combustion end of a liner consists of either a gasket under a flange or a machined fit. Rubber or neoprene rings generally form the seal at the crankshaft end of the liner. Liners of this type are constructed to permit lengthwise expansion and contraction. The walls of a wet liner must be strong enough to withstand the full working pressure of the combustion gases.

Cylinder liner dimension:

A= Fitting diameter
L= Total Length
H= Collar height
C= Collar diameter
F= Fire protection rim



Technical data (Installation of piston ring and piston in engine***)***

An engine's piston rings are used to seal the piston to the cylinder wall during the compression stroke. When a combustion event occurs these rings are forced against the engine block cylinder walls to help contain the energy that is released. Most engine pistons contain three separate rings that perform unique tasks. The first ring or top ring is the main combustion ring that takes the brunt of the force as the piston is thrust downward. The second combustion ring acts as an overflow or secondary confinement ring that aids in the service of the first main combustion ring. The third and final ring is used to control motor oil from entering the combustion chamber and being burned as explosive gasses are ignited. This oil control ring consists of three separate pieces and must be assembled on the piston. Piston rings typically last for the life of the motor, but because these rings are created from very hard and brittle metal they can break causing a failure. Failures can range from low compression, cylinder misfire, scoring of the cylinder walls and burning oil. As an engine ages piston rings wear into the cylinder walls and eventual fail, naturally. When this condition is present it lowers the engine's compression which causes low compression, burning oil and heavy exhaust smells which is the result of an incomplete combustion process.

Anytime an engine has reached its normal lifespan the engine needs to be disassembled and re-machined (rebuilt). This process is not difficult with the proper tools and instruction. (Note: if new piston rings are installed without machine work it will make the situation worse due to the oblong wear pattern the cylinder walls obtain during normal long term operations. In other words, new piston rings are perfectly round with no wear, if they are installed into an oval shaped cylinder (worn) the ring operation failure will be amplified.

Tools and Supplies Needed:

- Piston ring installation tool
- Protective eyewear and gloves
- Motor oil
- Shop towels
- Small standard screw driver or pick
- New Piston Ring Set

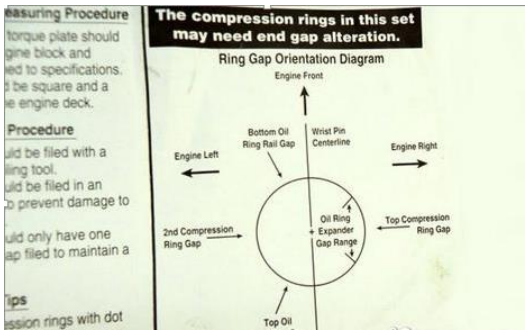
To replace piston rings the pistons must be removed from the engine block and replaced (if worn.) Also, for best results the connecting rods should be resized. Piston rods can become "out of shape" due to the extreme force they are subjected to. All piston rings are accompanied by a set of installation instructions, these instructions are used to determine the orientation of the piston ring gap. The location of this gap an important aspect to the performance of the ring.

Step 1

Begin by cleaning the piston thoroughly and securing it firmly in vise. (Do not tighten against piston, use connecting rod.)

Step 2

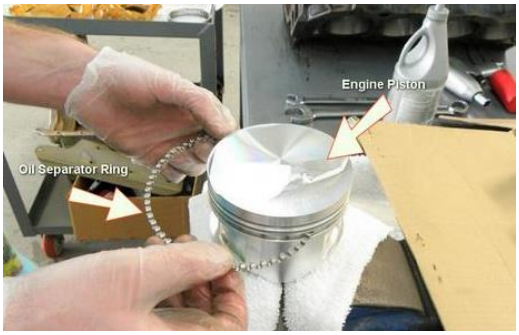
Next, remove the piston rings from the box and separate them into organized piles on a clean surface, use caution as to not mix rings or turn them over. (Compression rings install one direction only.) Locate piston ring installation instructions and read completely. (Each ring manufacturer has specific instructions.)



Step 3

Piston Ring Installation Orientation Guide
Always install piston rings at their popper orientation, this helps provide a superior seal to the cylinder walls .

Step4
Installing Piston Oil Separator Ring
The first piston ring to be installed is the oil separator ring. This ring is used to hold in place both oil wiper rings and is designed to allow engine oil on the cylinder walls to be removed and moved back into the oil pan via oil holes built into the piston. This ring doesn't need an installation tool



Step 5

Once properly installed the individual oil wiper rings are ready to be installed. These rings are unidirectional with no top or bottom like many compression rings.

Oil Wiper Ring Installation

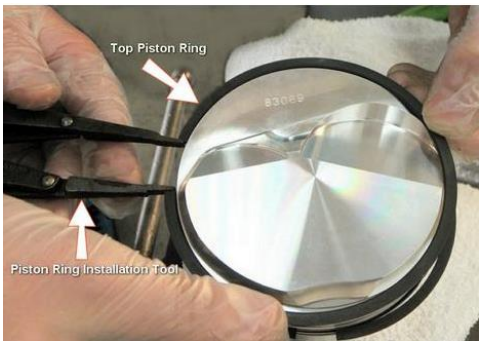
Each oil wiper ring is held in place by the oil separation ring that is securely mounted in the piston ring groove. These oil wiper rings reside at either end of the separator and are again, unidirectional. Be sure to reference the installation guide to ensure proper placement of the ring gaps.

Once the assembly of the oil wiper ring combination is complete double check the ring gap location as sometimes they can turn without notice while the installing the additional oil wiper ring. Be sure the oil ring is free from carbon, dirt, grease or any debris of any kind. Now we are ready to install the first compression piston ring.

Step 6

Installing Second Piston Ring

Carefully choose the correct piston ring (the second and first piston rings are usually different from one another.) This ring could have a top and bottom and usually is shown by a small dot on the top flat part of the ring, near the gap. This ring can sometimes be installed without aid of a ring installer. Gently pry the piston ring open just far enough to fit straight over the piston. Do not bend, or swirl the ring onto the piston because it can bend the ring inhibiting its operation. As with the oil wiper rings be sure to locate the ring gap in the correct location on the piston.



Step 7

Installation of the Top Compression Piston Ring

The top and final compression ring is installed at the top of the piston, a tool is needed to help spread the ring due to its rigid nature. Like the second ring the main compression ring must be installed with the top of the ring facing upward. If the piston rings are installed incorrectly the piston (engine) will have low compression and may burn oil. Be sure the ring gap is in its proper placement for optimum performance.

Step 8

Completely Installed Piston Ring Set

Once all piston rings have been installed perform a final ring gap location inspection. Always be sure the piston rings are "free floating". Ring must be able to move freely on the piston or it will inhibit proper operation.

Step9

Before installation, piston rings must be lubricated (oiled) this helps the piston rings "mate" to the piston and the cylinder walls. Also include wrist pin and piston skirts in the lubrication process. Repeat this process for all pistons to be installed into the engine block, once completed the pistons are ready for installation. Store assembled pistons in a clean dry area if they are not immediately used.

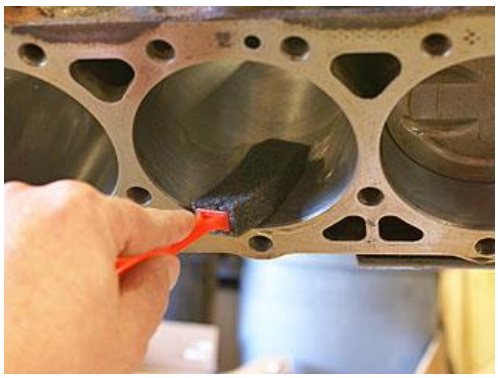
Best Practices

- Piston rings are a very important part of the engine and should be installed with care and cleanliness.
- Never install new piston rings into worn cylinder walls.
- Keep ring gap in proper locations on the piston
- Never twist compression rings when installing

Installing the Piston

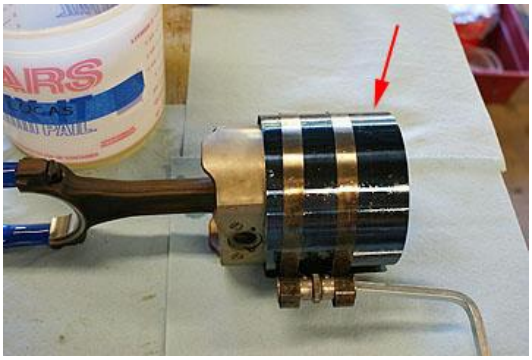
I wiped the cylinder wall with a clean paper towel and brake cleaner (to remove the oil I applied after cleaning the block, and all the dust that has accumulated since).

Then I used a small foam paint brush to **apply motor oil to the cylinder wall.**



I dipped the top of the piston in my oil/Lucas blend.
This is necessary so the piston will slide through the piston ring compressor and into the cylinder.

Then I placed the top of the piston in the piston ring compressor as shown. Note that the wide section of the dark blue steel band (red arrow) goes away from the piston.
The narrow part of the band goes against the engine block when the piston is installed. After tightening, the band has a slight taper, with the narrow diameter at the end with the narrow blue band.
I tightened the ratcheting key with the supplied L-shaped tool.



I inserted the connecting rod into the cylinder and held the piston ring compressor tightly against the engine block.
Note that the crankshaft was turned so the rod journal was at Bottom Dead Center, which means that the crank is as far away as possible from the piston.

I used the handle of a large hammer to tap the piston into the engine block.

Once the piston was fully inside the cylinder, I removed the piston ring compressor and continued tapping the piston into the block
After installing each piston, I rotated the crankshaft a few turns to spread the assembly lube around.

EN **LIST OF MANUFACTURERS**

PE **لیست تولید کنندگان**

C

CATTERPILLAR
CUMMINS
CITROEN

D

DESA
DELICA

F

FIAT

H

HESA
HOWO
HYUNDAI

I

IRAN KHODRO
ISUZU

K

KIA

M

MAN
MAZDA
MERSEDES BENZ
MEGA-MOTOR

N

NISSAN

P

PERKINS
PEUGOET

R

RENAULT

S

SAIPA
SCANIA
SEATEK

U

UTB

V

VOLVO

W

WESTINGHOUSE

Z

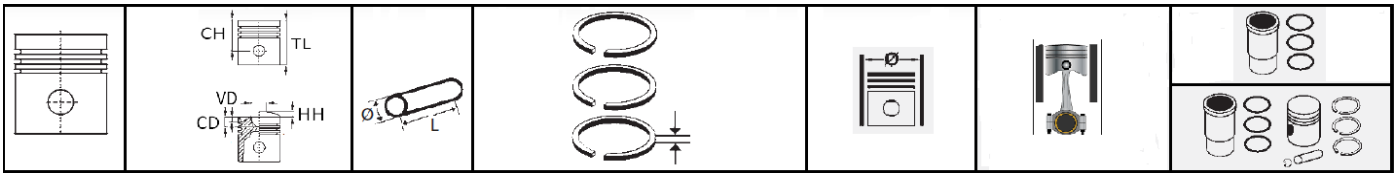
ZMZ

	Cyl.	Ø x mm	cm³			kW	PS

C

Engine model	number of cylinders		volume		Co. rate	power	power
XU10 J4RZ	4	86*86	1998	4	10.4:1	98	133

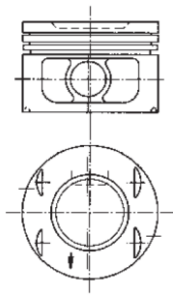
1



C

Ø86

XU10 J4RZ/PETROL ENGINE/ 4 CYL./ 1988 CM^3/4V/98(KW)/ 133(HP)/10.4:1/ 86MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=33.8 VD= 2,1.7 CD=4.3 TL=53.8	Ø22 * 62	R 1.5 Cr,Ph /0.25-0.50 M 1.5 Ph / 0.25-0.50 3S 3 Ph/ 0.25-1.00 ↘ (ES2- ALTERNATIVE)	Ø86.00	0.040mm	
	CH=33.8 VD= 2,1.7 CD=4.3 TL=53.8	Ø22 * 62	R 1.5 Cr,Ph /0.25-0.50 M 1.5 Ph / 0.25-0.50 3S 3 Ph/ 0.25-1.00 ↘ (ES2- ALTERNATIVE)	Ø86.25	0.040mm	
	CH=33.8 VD= 2,1.7 CD=4.3 TL=53.8	Ø22 * 62	R 1.5 Cr,Ph /0.25-0.50 M 1.5 Ph / 0.25-0.50 3S 3 Ph/ 0.25-1.00 ↘ (ES2- ALTERNATIVE)	Ø86.60	0.040mm	

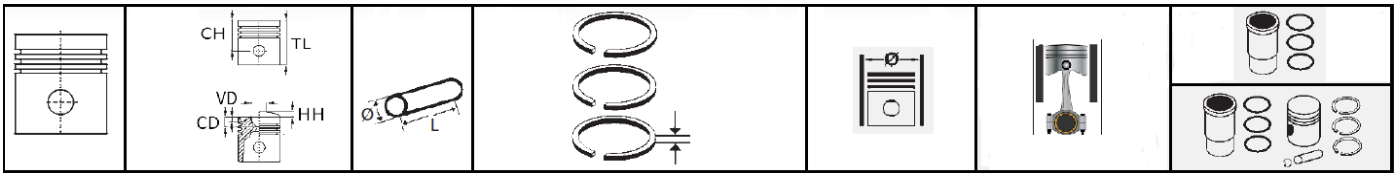
Applications

	Cyl.	ø x mm	cm³			kW	PS

C

Engine model	number of cylinders		volume		Co. rate	power	power
6BTA 5.9	6	102*120	5880	2	17.5:1	86-132	115-177
6CTAA	6	114*135	8270	2	17.5:1	127-274	172-372

1



C

Ø120

6BTA 5.9/DIESEL ENGINE/ 6 CYL./ 5880 CM^3/2V/86-132(KW)/ 115-177(HP)/ 17.5:1/ 120MM

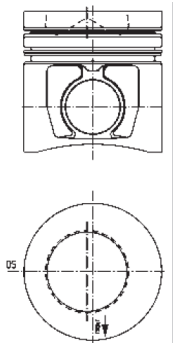
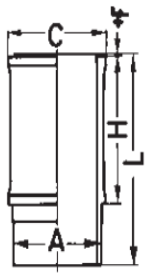
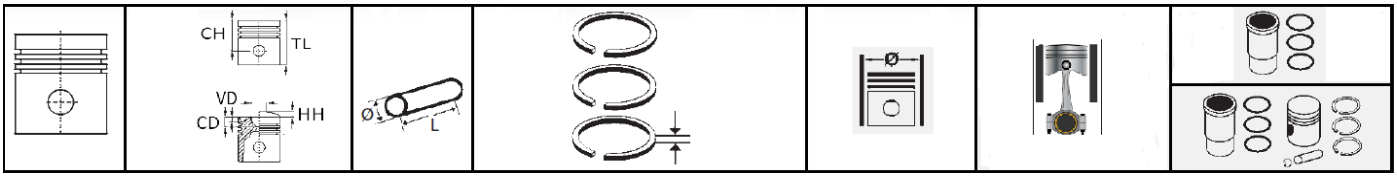
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=71.6* *HH=---* *VD=---* *CD=22.4* *TL=105.6*	*Ø40* *** *83*	*T 3 Cr/0.3-0.5* *M 2.385 P/0.35-0.55* *DSF-C 4 Cr,Ph/0.3-0.55*	*Ø102*	*0.12MM*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*105.065*	*102*	*----*	*----*	*197*	*----*		

Applications

2



C

Ø114

Dong feng 6CTAA/DIESEL ENGINE/ 6 CYL./ 8270 CM^3/2V/127-274(KW)/ 172-372(HP)/ 17.5:1/ 135MM

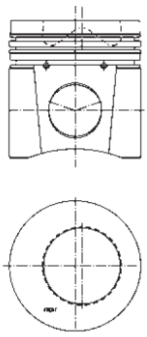
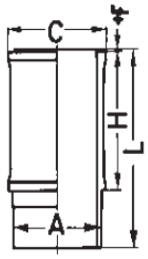
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=74.3* *HH=---* *VD=---* *CD=22* *TL=110.4*	*Ø45* *** *91*	*T 3.5 Cr/0.3-0.5* *M 3 Ph/0.35-0.55* *Dsf-c 4 Cr,Ph/0.35-0.65*	*Ø114*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*G1=125.685*	*114*	*130.948*	*1.25*	*235.37*	*123.039*		
	G2=125.685	*114*	*131.2*	*1.25*	*235.37*	*124.25*		

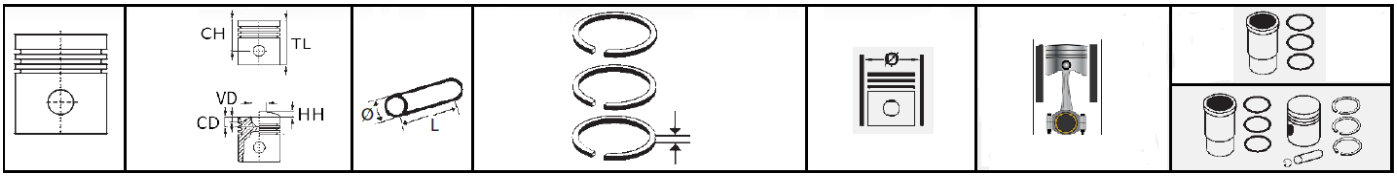
Applications

	Cyl.	ø x mm	cm^3			kW	PS

C

Engine model	number of cylinders		volume		Co. rate	power	power
3304,3306	4	121*152	---	2	17.5:1	123	167

1



C

Ø 120

3304/ DIESEL ENGINE/4 CYL/ / 2V/123 (KW)/167(HP)/ /152MM

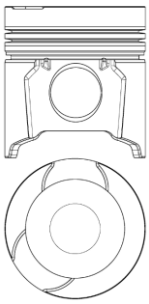
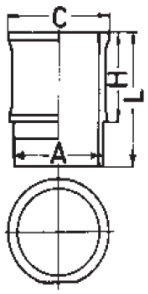
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=73.91* *HH=---* *VD=2.03* *CD=19.7* *TL=129.91*	*Ø43.18* *** *94.9*	*T 3.12 Cr / 0.5* *T 3.12 Cr,Ph / o.6* *DSF-C 4 Cr,Ph/0.5*	*Ø120.65*	*0.11mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR ©	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*134.4*	*120.65*	*143*	*1.00*	*255*	*10.3*		

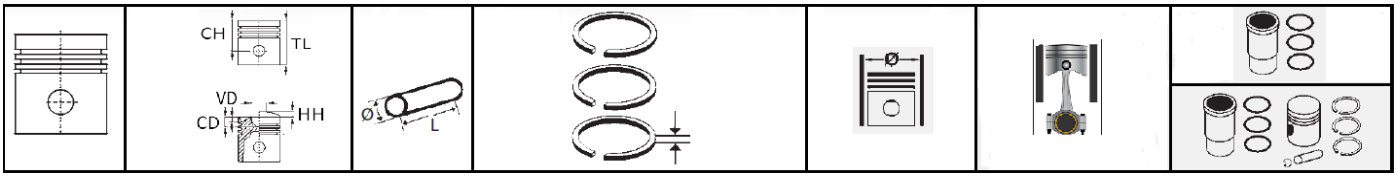
Applications

	Cyl.	ø x mm	cm³			kW	PS

D

Engine model	number of cylinders		volume		Co. rate	power	power
MITSUBISHI 4G63	4	85*88	1997	2	8.6:1	66-75	90-102

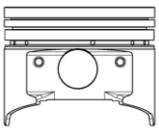
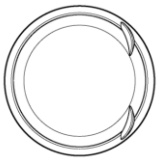
1



Ø85

D

MITSUBISHI 4G63/PETROL ENGINE/ 4 CYL./ 1997 CM^3/2V/66-75(KW)/ 90-102(HP)/ 8.6:1/ 88MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	CH=35 CD=2 TL=67	Ø22 * 62	M 1.2 Nitriding/0.25-0.50 R 1.5 Cr,Ph / 0.25-0.45 3S 2.8 Nitriding/0.25-1.0	Ø85.00	0.020-0.040	
	CH=35 CD=2 TL=67	Ø22 * 62	1.2 M2 Nitriding/0.25-0.50 1.5 Cr,Ph / 0.25-0.45 2.8 ES2 Nitriding/0.25-1.0	Ø85.25	0.020-0.040	
	CH=35 CD=2 TL=67	Ø22 * 62	1.2 M2 Nitriding/0.25-0.50 1.5 Cr,Ph / 0.25-0.45 2.8 ES2 Nitriding/0.25-1.0	Ø85.50	0.020-0.040	

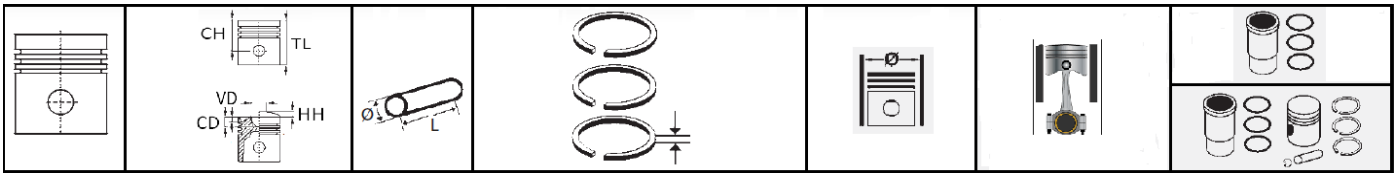
Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
				2			

D

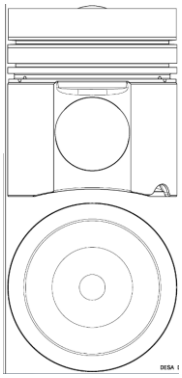
1



Ø150

D87/

D

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 111.55 VD= --- CD= 9.0 TL= 167.05	Ø65 * 120	4.12 3.5 5	Ø150		

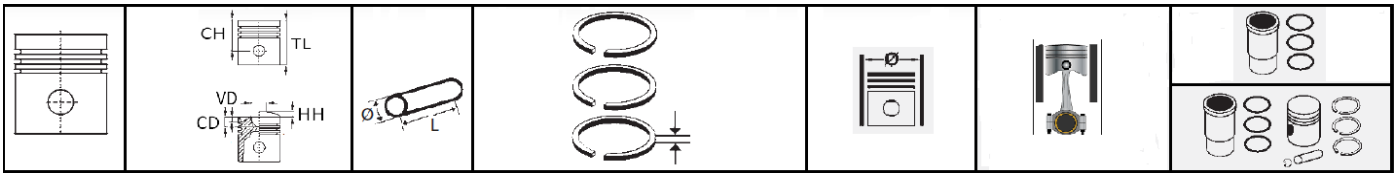
Applications

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
8060.02	6	100*110	5184	2	17:1	90	122

F

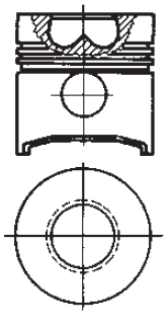
1



Ø100

8060.02/DIESEL ENGINE/ 6 CYL./ 5184 CM^3/2V/90(KW)/ 122(HP)/ 17:1/ 110MM

F

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.00	0.11mm	
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.100	0.11mm	
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.200	0.11mm	
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.400	0.11mm	
	CH=59.65 CD=23.7 TL=101.1	Ø32 * 84		Ø100.500	0.11mm	
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.600	0.11mm	
	CH=59.65 CD=23.7 TL=101.15	Ø32 * 84		Ø100.800	0.11mm	

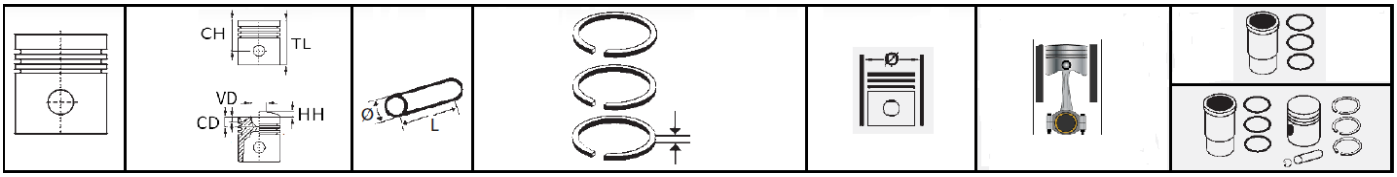
Applications

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
8060.02	6	100*110	5184	2	17:1	90	122

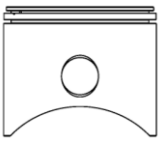
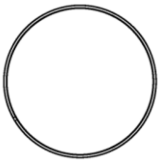
H

1



Ø66

H

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	CH=30 TL=56	Ø16 * 57	L 2 Ph / 0.05-0.25 R 1.5 Ph / 0.10-0.30	Ø66	0.045-0.065	

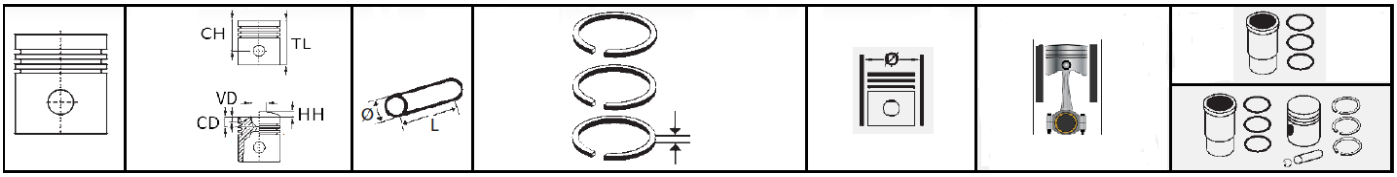
Applications

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
WD615	6	126*130	9726	4	17.5:1	158	213

H

1



Ø126

WD 615/DIESEL ENGINE/ 6 CYL./ 9726 CM^3/4V/158(KW)/ 213(HP)/ 17.5:1/ 130MM

H

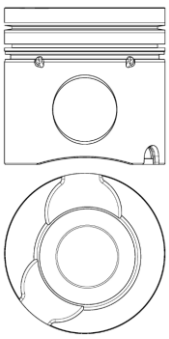
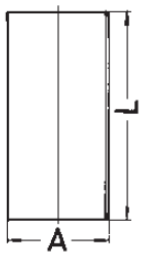
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=80* *HH=---* *VD=0.6* *CD=19.5* *TL=123*	*Ø50* *** *105*	*T 3.5 Mol,Ph/0.35-0.60* *M 3 Cr,Ph/0.4-0.6* *DSF-C 4 Cr,Ph/0.2-0.45*	*Ø126*	*0.130mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR ©	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*130.02*	*126*	*136.5*	*-----*	*2.41*	*4.78*		

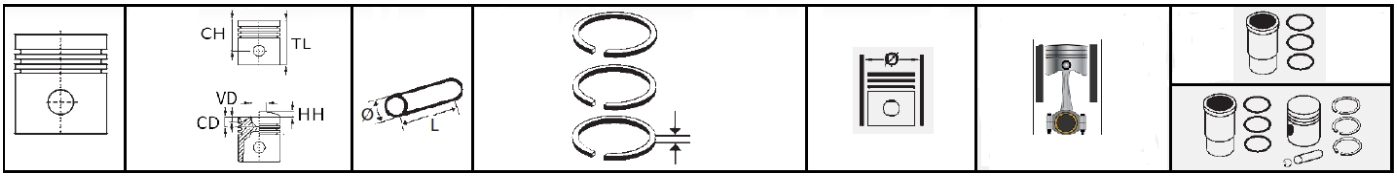
Applications

	Cyl.	ø x mm	cm^3			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
DA4A	4	100*105	3298	2	16.5:1	88	120

H

1



Ø100

D4AE,D4AL/DIESEL ENGINE/ 4 CYL./ 3298 CM^3/2V/88(KW)/ 120(HP)/ 16.5:1/ 88MM

H

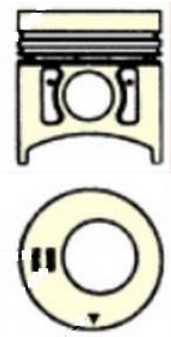
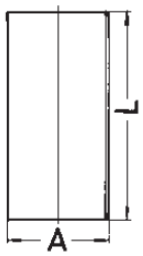
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=60.65 HH=--- VD=--- CD=17.4 TL=110.7	Ø34 * 84	K 3.16 Cr,Ph/0.25-0.45 M 2 Cr,Ph/ 0.30-0.50 DSF-C 4 Ph/ 0.25-0.45	Ø100	0.14	

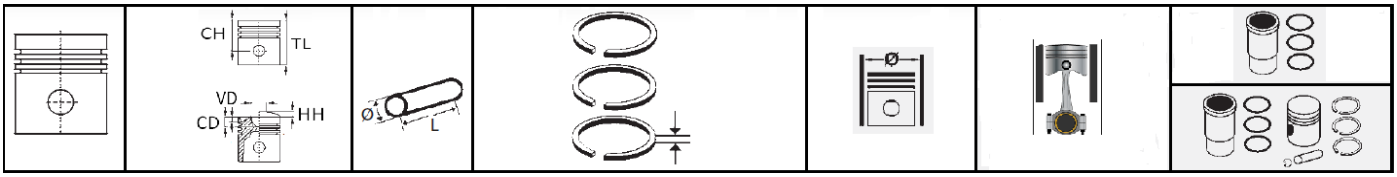
ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	Ø104	100	---	---	192	---		

Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
PAKAN 1600 LC	4	88*66.7	1600	2	7.8:1	48	69
PAYKAN 1725	4	82*66.7	1725	2	5.7:1	58	79
PAKAN OHV	4	88*66.7	1800	2	10.8:1	64	86
EF7 ,EF7 CNG	4	78.6*85	1645	4	11:1	84	113
EF4	4		1397		11.1:1	70	95
XUM	4	83*81.4	1792		9.25:1	73-76	99-103

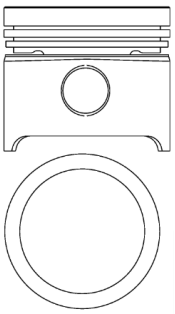
1



Ø88

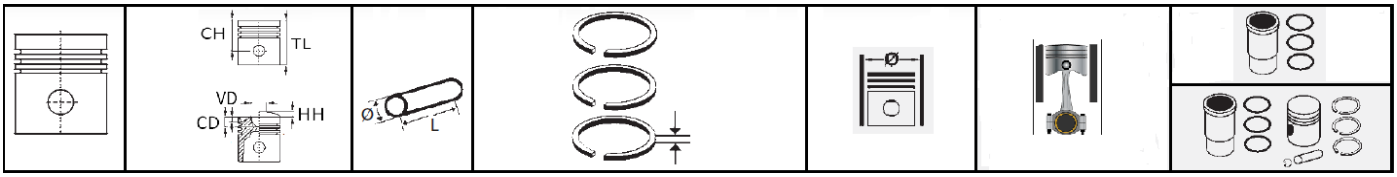
PAYKAN 1600 LC/PETROL ENGINE/ 4 CYL./ 1600 CM^3/2V/48 (KW)/ 69(HP)/ 7.8:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=44.07 CD=4.8 TL=75.87	Ø23.81 2 * 74.62	R 2 Cr,Ph / 0.33-0.53 M 2 Ph /0.25-0.45 3S 3.975 Cr,Ph /0.2-0.7	Ø87.346	0.03mm	
	CH=44.07 CD=4.8 TL=75.87	Ø23.81 2 * 74.62	R 2 Cr,Ph / 0.33-0.53 M 2 Ph /0.25-0.45 3S 3.975 Cr,Ph /0.2-0.7	Ø87.859	0.03mm	
	CH=44.07 CD=4.8 TL=75.87	Ø23.81 2 * 74.62	R 2 Cr,Ph / 0.33-0.53 M 2 Ph /0.25-0.45 3S 3.975 Cr,Ph /0.2-0.7	Ø88.113	0.03mm	
	CH=44.07 CD=4.8 TL=75.87	Ø23.81 2 * 74.62	R 2 Cr,Ph / 0.33-0.53 M 2 Ph /0.25-0.45 3S 3.975 Cr,Ph /0.2-0.7	Ø88.367	0.03mm	
	CH=44.07 CD=4.8 TL=75.87	Ø23.81 2 * 74.62	R 2 Cr,Ph / 0.33-0.53 M 2 Ph /0.25-0.45 3S 3.975 Cr,Ph /0.2-0.7	Ø88.875	0.03mm	

Applications

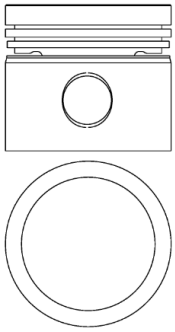
2



Ø82

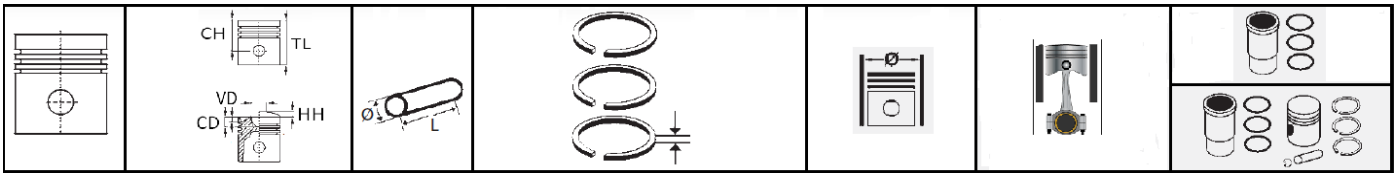
PAYKAN 1725 HC/PETROL ENGINE/ 4 CYL./ 1725 CM^3/2V/58 (KW)/ 79(HP)/ 5.1:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=47 CD=6 TL=72	Ø23.812 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø81.549	0.03mm	
	CH=47 CD=6 TL=72	Ø23.812 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.062	0.03mm	
	CH=47 CD=6 TL=72	Ø23.812 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.316	0.03mm	
	CH=47 CD=6 TL=72	Ø23.812 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.570	0.03mm	
	CH=47 CD=6 TL=72	Ø23.812 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø83.078	0.03mm	

Applications

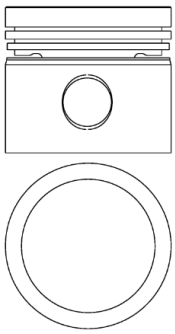
3



Ø82

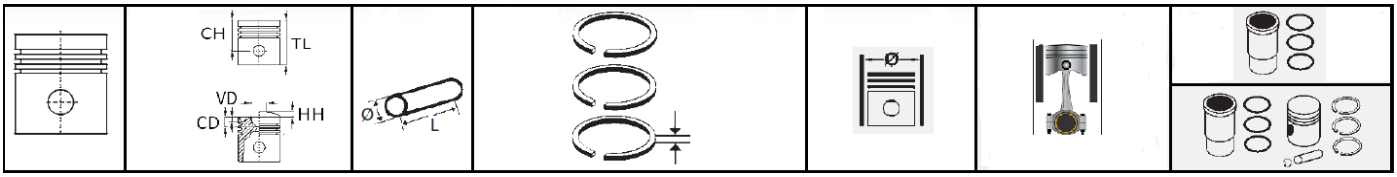
PAYKAN 1725 HC/PETROL ENGINE/ 4 CYL./ 1725 CM^3/2V/58 (KW)/ 79(HP)/ 5.1:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=44.07 CD=2.5 TL=75.87	Ø23.812 * 74.62	R 1.981 Ph / 0.33-0.53 M 1.981 Ph / 0.25-0.45 3S 3.975 Ph / 0.20-0.70	Ø87.346	0.03mm	
	CH=44.07 CD=2.5 TL=75.87	Ø23.812 * 74.62	R 1.981 Ph / 0.33-0.53 M 1.981 Ph / 0.25-0.45 3S 3.975 Ph / 0.20-0.70	Ø87.859	0.03mm	
	CH=44.07 CD=2.5 TL=75.87	Ø23.812 * 74.62	R 1.981 Ph / 0.33-0.53 M 1.981 Ph / 0.25-0.45 3S 3.975 Ph / 0.20-0.70	Ø88.113	0.03mm	
	CH=44.07 CD=2.5 TL=75.87	Ø23.812 * 74.62	R 1.981 Ph / 0.33-0.53 M 1.981 Ph / 0.25-0.45 3S 3.975 Ph / 0.20-0.70	Ø88.367	0.03mm	
	CH=44.07 CD=2.5 TL=75.87	Ø23.812 * 74.62	R 1.981 Ph / 0.33-0.53 M 1.981 Ph / 0.25-0.45 3S 3.975 Ph / 0.20-0.70	Ø88.875	0.03mm	

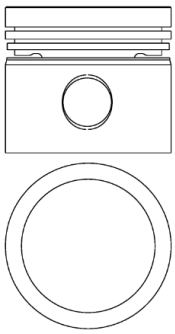
Applications

4



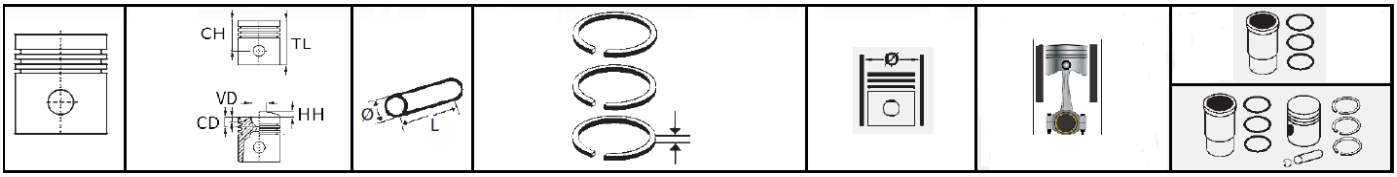
Ø82Ø82

PAYKAN 1725 LC/PETROL ENGINE/ 4 CYL./ 1725 CM^3/2V/58 (KW)/ 79(HP)/ 5.1:1/ 66.7MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=47 CD=8.75 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø81.549	0.03mm	
	CH=47 CD=8.75 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.062	0.03mm	
	CH=47 CD=8.75 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.316	0.03mm	
	CH=47 CD=8.75 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.57	0.03mm	
	CH=47 CD=8.75 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø83.078	0.03mm	

Applications

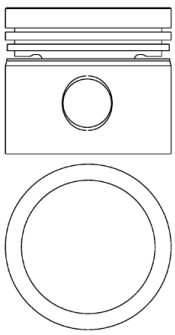
5



Ø82

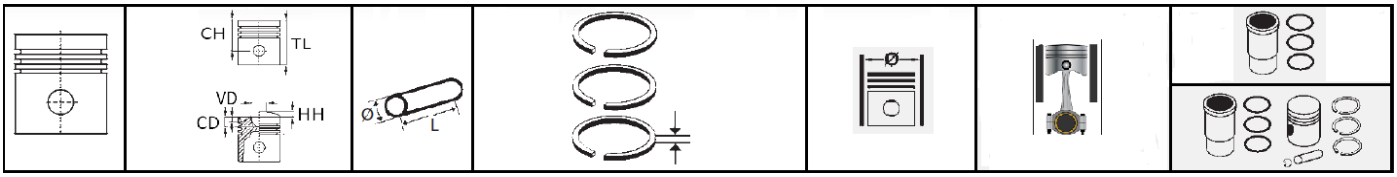
PAYKAN 1725 MD/PETROL ENGINE/ 4 CYL./ 1725 CM^3/2V/58 (KW)/ 79(HP)/ 5.1:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=47 CD=7 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø81.549	0.03mm	
	CH=47 CD=7 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.062	0.03mm	
	CH=47 CD=7 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.316	0.03mm	
	CH=47 CD=7 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø82.570	0.03mm	
	CH=47 CD=7 TL=72	Ø23.81 2 * 69.8	R 2 Cr,Ph M 2 Ph 3S 4 Cr,Ph	Ø83.078	0.03mm	

Applications

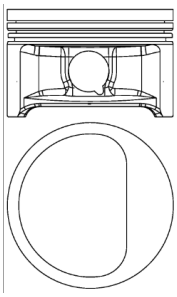
6



Ø88

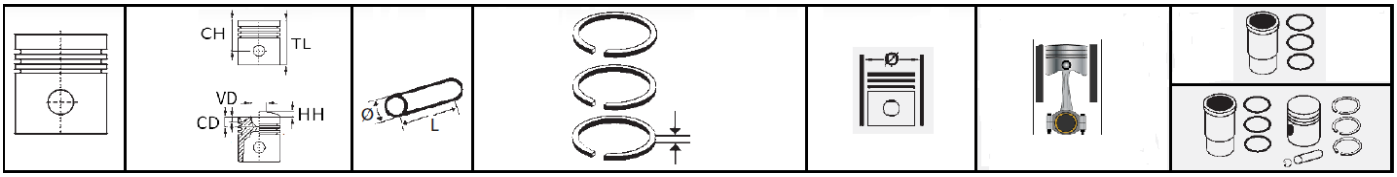
PAYKAN OHV/PETROL ENGINE/ 4 CYL./ 1600 CM^3/2V/48 (KW)/ 69(HP)/ 7.8:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=32.7 CD=6.3 TL=56.7	Ø21 * 50	R 1.2 Cr,Ph /0.2 M 1.5 Ph /0.35 UFX 2 Ph / ----	Ø87.350	0.05mm	
	CH=32.7 CD=6.3 TL=56.7	Ø21 * 50	R 1.2 Nitriding/0.2-0.35 M 1.5 Ph /0.3-0.5 3S 2 Ph /0.5-0.75	Ø87.863	0.05mm	
	CH=32.7 CD=6.3 TL=56.7	Ø21 * 50	R 1.2 Nitriding/0.2-0.35 M 1.5 Ph /0.3-0.5 3S 2 Ph /0.5-0.75	Ø88.117	0.05mm	
	CH=32.7 CD=6.3 TL=56.7	Ø21 * 50	R 1.2 Nitriding/0.2-0.35 M 1.5 Ph /0.3-0.5 3S 2 Ph /0.5-0.75	Ø88.371	0.05mm	

Applications

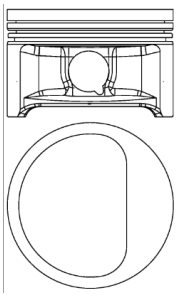
7



Ø88

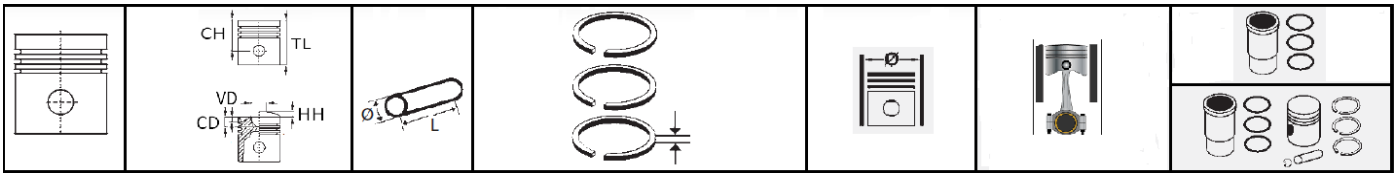
PAYKAN OHV /CNG GAZ ENGINE/ 4 CYL./ 1600 CM^3/2V/48 (KW)/ 69(HP)/ 7.8:1/ 66.7MM

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH= 32.85* *CD=5.52* *TL=56.85*	*Ø21* *** *50*	*R 1.2 Nitriding/0.2-0.35* *M 1.5 Ph/0.3-0.5* *3S 2 Ph/0.5-0.75*	*Ø87.35*	*0.05mm*	

Applications

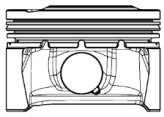
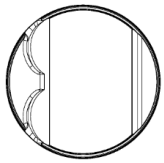
8



Ø78.6

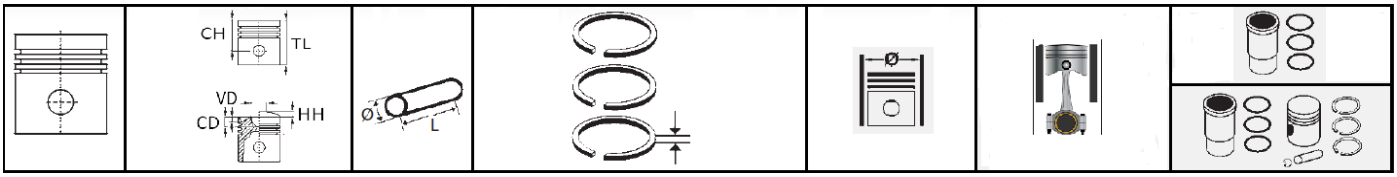
EF4 NA/CNG GAZ ENGINE/ 4 CYL./ 1397 CM^3/2V/70 (KW)/ 95(HP)/ 11.1:1

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	CH=32.7 VD=3.04 TL=54	Ø21 * 58	R 1.2 Ph /0.15 M 1.5 Ph / 0.5 DSF 2.5 Ph / 0.25	Ø78.6	0.065mm	
	CH=32.7 VD=3.04 TL=54	Ø21 * 58	R 1.2 Ph /0.15 M 1.5 Ph / 0.5 DSF 2.5 Ph / 0.25	Ø 78.855	0.065mm	
	CH=32.7 VD=3.04 TL=54	Ø21 * 58	R 1.2 Ph /0.15 M 1.5 Ph / 0.5 DSF 2.5 Ph / 0.25	Ø79.105	0.065mm	

Applications

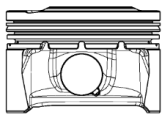
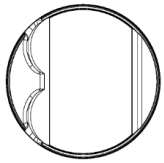
9



Ø78.6

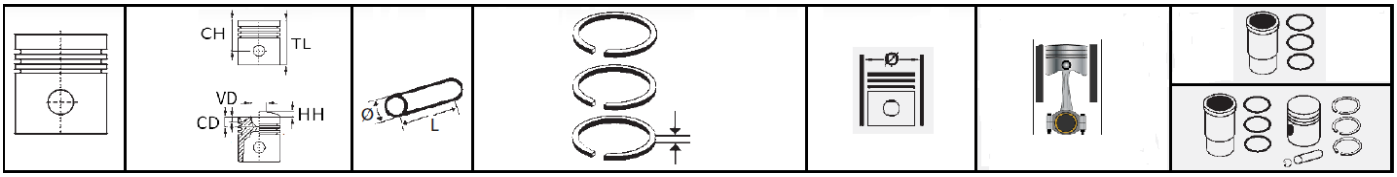
EF4 NA/PETROL ENGINE/ 4 CYL./ 1397 CM^3/2V/70 (KW)/ 95(HP)/ 11.1:1

I

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	*CH=34.5* *HH=4.4* *VD=3.04* *TL=54*	*Ø21* *** *45.5*	*R 1.2 Ph / 0.15* *M 1.5 Ph / 0.5* *DSF 2.5 Ph / 0.25*	*Ø78.6*	*0.065mm*	

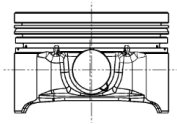
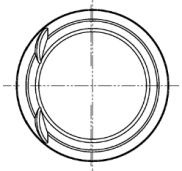
Applications

10



Ø78.6

EF7 TC/PETROL ENGINE/ 4 CYL./ 1645 CM^3/2V/84 (KW)/ 105(HP)/ 11:1/85MM

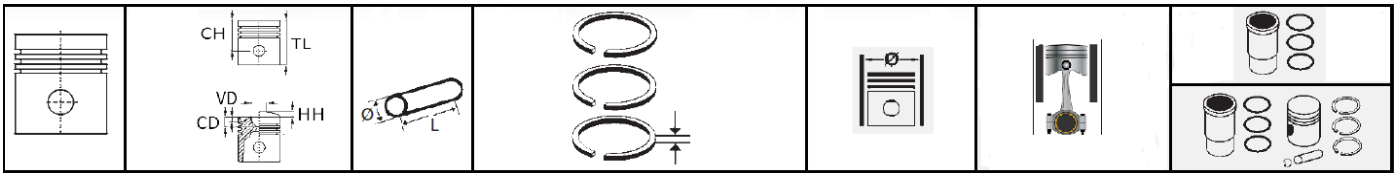
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	CH=29.5 VD=2.2 CD=1.85 TL=51.5	Ø21 * 58	R 1.2 Ph / 0.15 M 1.5 Ph / 0.5 DSF 2.5 Ph/0.25	Ø78.6	0.061mm	

I

Applications



11



Ø83

XUM/PETROL ENGINE/ 4 CYL./ 11762 CM^3/2V/73-76 (KW)/ 99-103(HP)/ 9.25:1/81.4MM

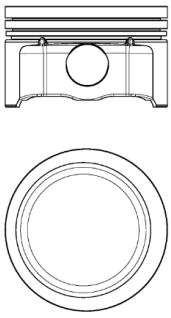
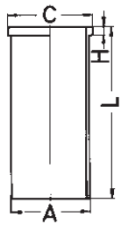
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=30 HH=--- VD=--- CD=3.85 TL=51.5	Ø21 * 50	PVD 1.2 / 0.2-0.35 NM4 1.2 PH/0.3-0.55 UFX 2 PH/ 0.05 MAX	Ø83	-----	

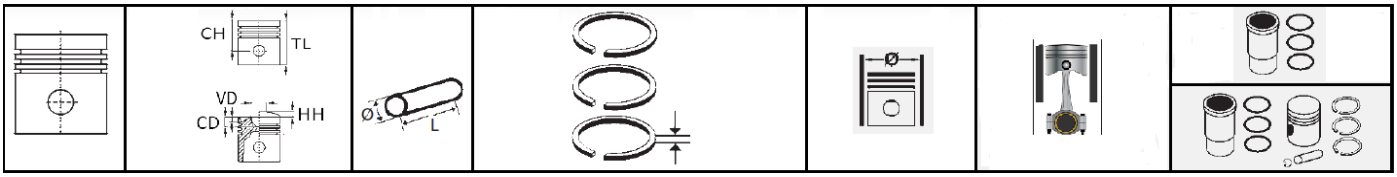
ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	88.5	83	97.5	---	141	95.135		

Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
4HE1	4	110*125	4750	2	17.3:1	109	148
4JB1	4	93*102	2771	2		50	68

1



Ø110

4HE1-TC/DIESEL ENGINE/ 4 CYL./ 4750 CM^3/2V/109 (KW)/ 148(HP)/ 17.3:1/125MM

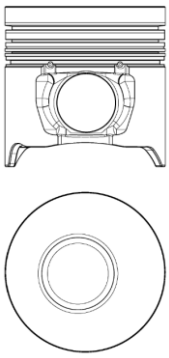
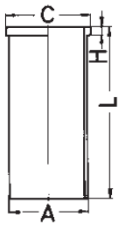
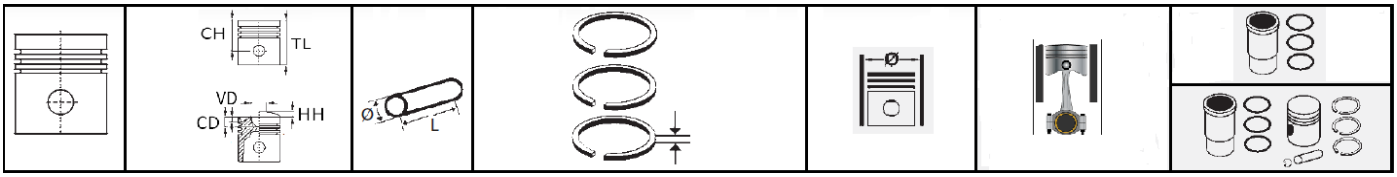
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=66.2* *HH=---* *VD=---* *CD=22.6* *TL=110*	*Ø40* *** *87*	*ET 3 Cr,Nitriding/0.2-0.45* *M 2 Nitriding /0.3-0.55* *M 1.2 Nitriding /0.3-0.55* *Dsf 3 Nitriding/0.2-0.45*	*Ø110*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*115.03-115.04*	*110*	*120.7*	*0.4*	*210*	*5.7*		

Applications

2



Ø93

4JB1/DIESEL ENGINE/ 4 CYL./ 2771 CM^3/2V/50 (KW)/ 68(HP)/ 17.3:1/102MM

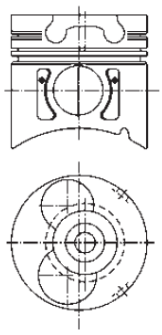
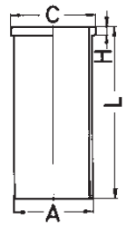
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=51.84* *HH=---* *VD=-0.5* *CD=-19.5* *TL=91.84*	*Ø34* *** *78*	*R 2 Ph/0.2-0.4* *M 2 Ph/0.2-0.4* *Dsf-c 4 Cr,Ph /0.2-0.4*	*Ø93*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*95.01-95.02*	*93*	*101*	*---*	*181*	*0.9*		

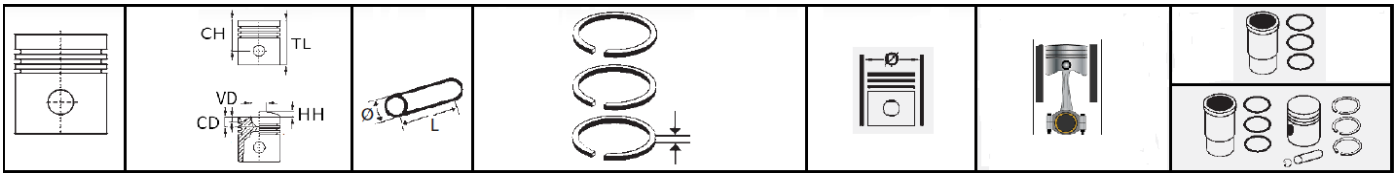
Applications

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
B5	4	75.5*83.4	1493	2	9.5:1	72	97

K

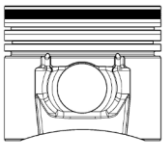
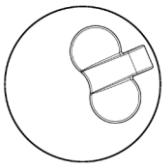
1



Ø75.5

B5/PETROL ENGINE/ 4 CYL./ 1493 CM^3/2V/72 (KW)/ 97(HP)/ 9.5:1/83.4MM

K

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 28.3 VD=1.5 CD=2.3 TL=51.3	Ø20 * 53	R 1.2 Cr/0.15-0.30 M 1.2 Ph/0.25-0.50 3S 2.5 Ph,Cr/0.2-0.7	Ø75.5	0.023-0.036	
	CH= 28.3 VD=1.5 CD=2.3 TL=51.3	Ø20 * 53	R 1.2 Cr/0.15-0.30 M 1.2 Ph/0.25-0.50 3S 2.5 Ph,Cr/0.2-0.7	Ø75.75	0.023-0.036	
	CH= 28.3 VD=1.5 CD=2.3 TL=51.3	Ø20 * 53	R 1.2 Cr/0.15-0.30 M 1.2 Ph/0.25-0.50 3S 2.5 Ph,Cr/0.2-0.7	Ø76.00	0.023-0.036	

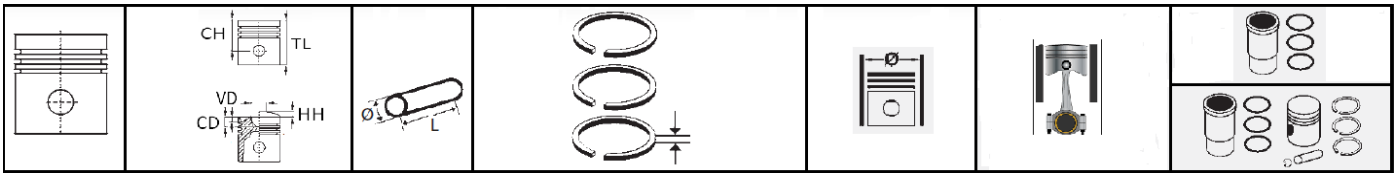
Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
2866 LUH01	6	128*155	11967	2	16:1	228	310
2866 euro 2	6	128*155	11967	2	16:1	198	269
2866 euro 3	6	128*155	11967	2	16:1	191-301	260-410
2876 euro 2	6	128*166	12816	2	17:1	320-338	435-460
2876 euro 3	6	128*166	12816	2	18:1	301-390	410-530

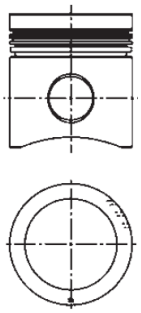
M

1

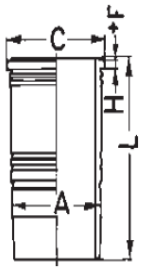


Ø128

2866 luh01/DIESEL ENGINE/ 6 CYL./ 11967 CM^3/2V/228 (KW)/ 310(HP)/ 16:1/155MM

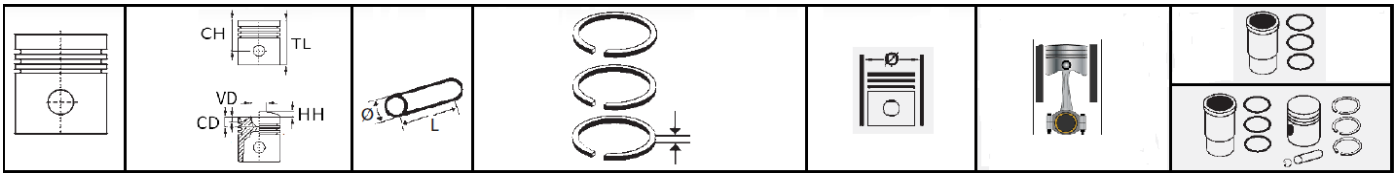
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=89.2* *HH=---* *VD=---* *CD=28.0* *TL=141.27*	*Ø46* *** *105*	*R 3.5 Cr /0.4 -0.65* *M 3 Ph/ 0.6-0.85* *DSF-C 4 Cr / 0.3-0.55*	*Ø128*	*0.15*	

M

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.45*	*128*	*153.8*	*1.0*	*270*	*10.07*		

Applications

2



Ø128

2866 euro2/DIESEL ENGINE/ 6 CYL./ 11967 CM^3/2V/198 (KW)/ 269(HP)/ 16:1/155MM

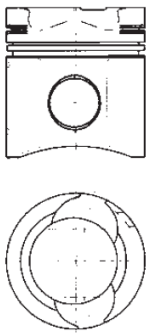
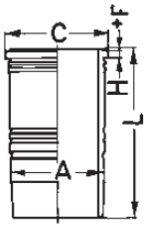
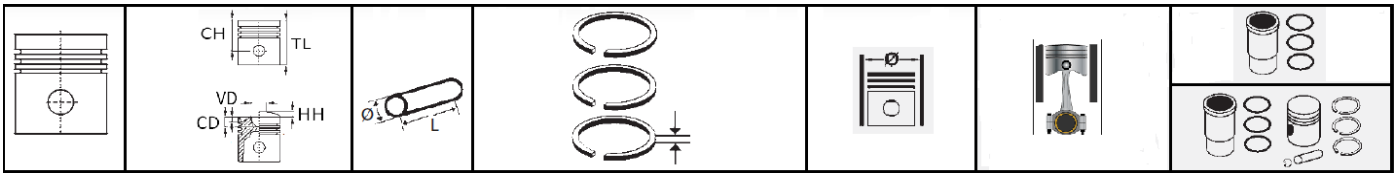
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=89.75* *HH=---* *VD=2.1* *CD=21.6* *TL=141.75*	*Ø46* *** *105*	*3.5 KBA Cr,Ph / 0.4-0.65* *3 M4 Cr,Ph / 0.6-0.85* *5 DSF-C Cr,Ph/ 0.35-0.65*	*Ø128*	*0.140*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.45*	*128*	*153.8*	*1.0*	*270*	*10.07*		

Applications

3



Ø128

2866 euro3/DIESEL ENGINE/ 6 CYL./ 11967 CM^3/2V/191-301 (KW)/ 260-410(HP)/ 16:1/155MM

M

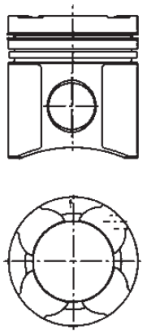
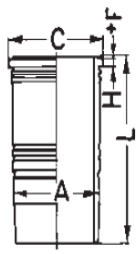
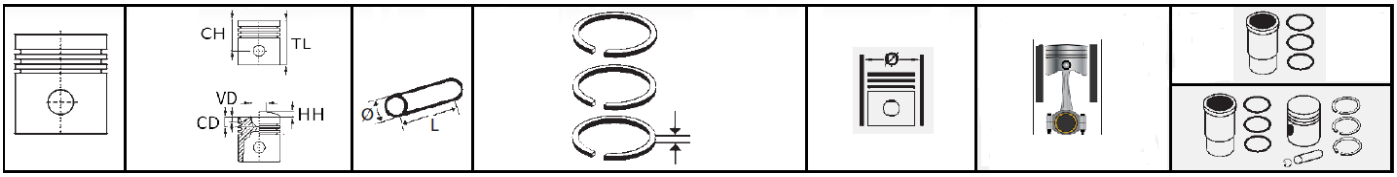
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=89.75* *HH=---* *VD=1.9* *CD=22.0* *TL=141.75*	*Ø46* *** *105*	*R 4 Cr,Ph / 0.35-0.6* *M 3 Cr,Ph / 0.6-0.85* *DSF-C 4 Cr,Ph/ 0.35-0.6*	*Ø128*	*0.150*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.45*	*128*	*153.8*	*1.0*	*270*	*10.07*		

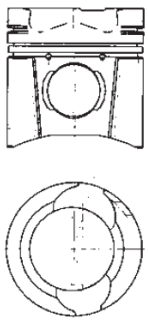
Applications

4

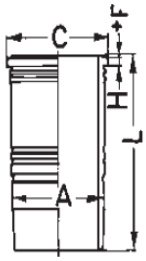


Ø128

2876 euro2/DIESEL ENGINE/ 6 CYL./ 12816 CM^3/2V/320-338 (KW)/ 435-460(HP)/ 17:1/166MM

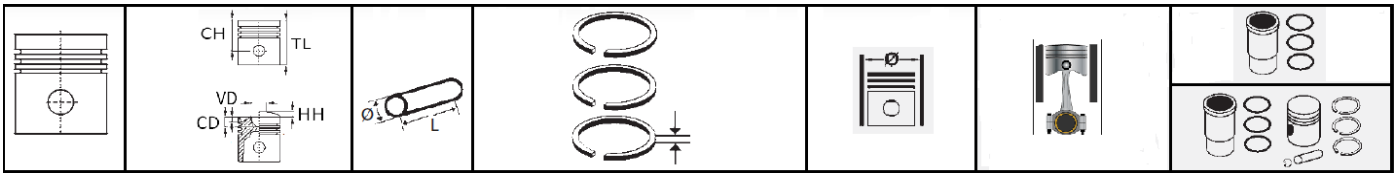
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=79.25* *HH=---* *VD=1.9* *CD=21.74* *TL=134.25*	*Ø50* *** *107*	*R 4 Cr,Ph / 0.35-0.6* *M 3 Cr,Ph / 0.6-0.85* *DSF-C 4 Cr,Ph/ 0.35-0.6*	*Ø128*	*0.150*	

M

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.45*	*128*	*153.8*	*1.0*	*270*	*10.07*		

Applications

5



Ø128

2876 euro3/DIESEL ENGINE/ 6 CYL./ 12816 CM^3/2V/301-390 (KW)/ 410-530(HP)/ 18:1/166MM

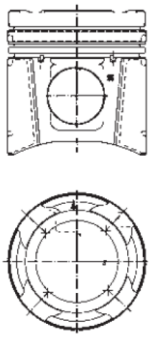
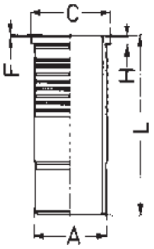
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=79.25* *HH=---* *VD=1.9* *CD=23.7* *TL=134.25*	*Ø52* *** *103*	*R 4 Cr,Ph / 0.35-0.6* *M 3 Cr,Ph / 0.6-0.85* *DSF-C 4 Cr,Ph/ 0.35-0.6*	*Ø128*	*0.12*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.5*	*128*	*153.8*	*---*	*268*	*8.07*		

Applications

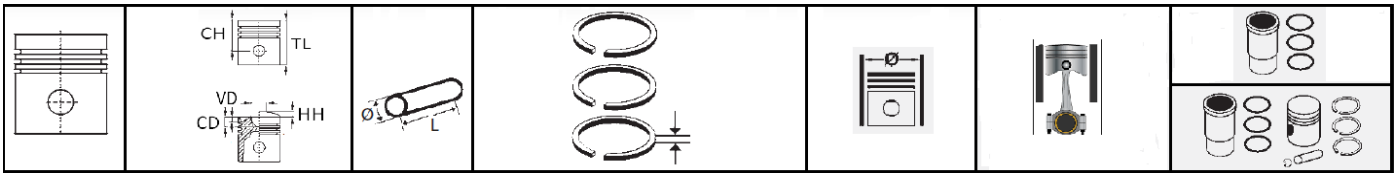
M

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	Power
NAH 602	4		1600	2			
FEO	4	86*86	2000	2	8.6:1	70	95
FE	4	86*86	1998	2	8.6:1	85	116

M

1



Ø78

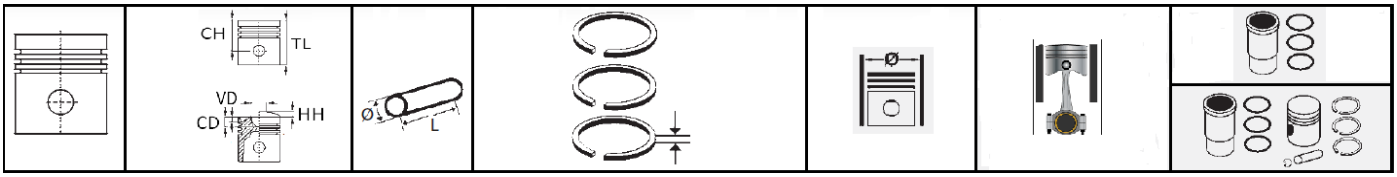
NAH 602/PETROL ENGINE/ CYL./ 1600 CM^3/2V

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 38.5 *HH= 2.5* *CD= ----* *TL= 78*			*Ø78*		

M

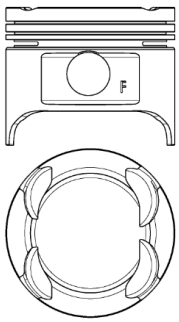
Applications

2



Ø86

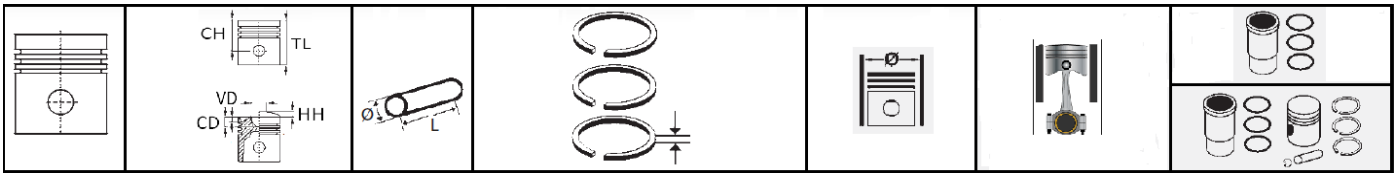
FEO /PETROL ENGINE/ 4 CYL./ 2000 CM^3/2V/70 (KW)/ 95(HP)/ 8.6:1/86MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=34 VD=4.22 . 2.45 CD= 3.0 TL=71	Ø21.98 5 * 67		Ø86.03	0.035mm	
	CH=34 VD=4.22 . 2.45 CD= 3.0 TL=71	Ø21.98 5 * 67		Ø86.28	0.035mm	
	CH=34 VD=4.22 . 2.45 CD= 3.0 TL=71	Ø21.98 5 * 67		Ø86.53	0.035mm	

M

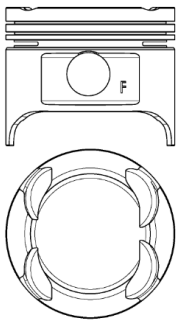
Applications

3



Ø86

FE /PETROL ENGINE/ 4 CYL./ 1998 CM^3/2V/85 (KW)/ 116(HP)/ 8.6:1/86MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=34.0 VD=3.59 , 4.4 CD=2.3 TL=70.4	Ø21.98 * 67	1.5 R Nitriding/0.25-0.4 1.5 NM3 Ph/0.25-0.45 4 ES2 Nitriding/0.25-1.0	Ø86.00	0.050mm	
	CH=34.0 VD=3.59 , 4.4 CD=2.3 TL=70.4	Ø21.98 * 67	1.5 R Nitriding/0.25-0.4 1.5 NM3 Ph/0.25-0.45 4 ES2 Nitriding/0.25-1.0	Ø86.25	0.050mm	
	CH=34.0 VD=3.59 , 4.4 CD=2.3 TL=70.4	Ø21.98 * 67	1.5 R Nitriding/0.25-0.4 1.5 NM3 Ph/0.25-0.45 4 ES2 Nitriding/0.25-1.0	Ø86.50	0.050mm	

M

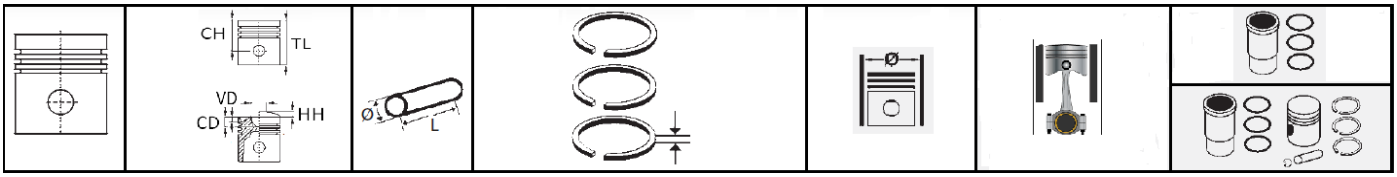
Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	Power
S81	4	75.5*83.6	1497	2	9.7:1	59	80

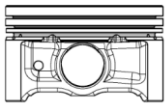
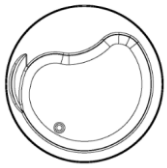
M

1



Ø75.5

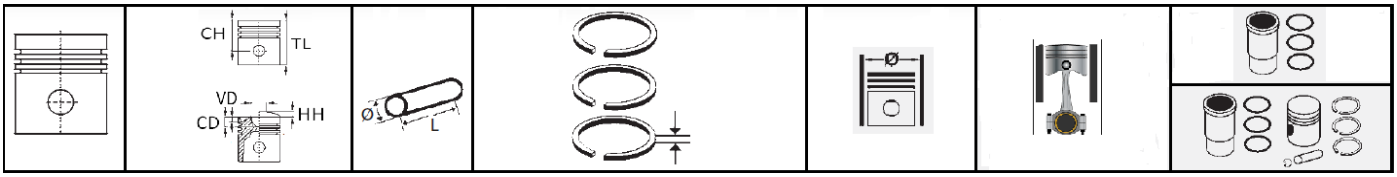
S81-CNG /PETROL ENGINE/ 4 CYL./ 1497 CM^3/2V/59 (KW)/ 80(HP)/ 9.7:1/83.6MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	*CH=28.7* *VD=2.18* *CD=3.4* *TL=48.7*	*Ø19.98* * *53*	*R 1 Nitriding / 0.2* *NM 1.2 Ph / 0.5* *3S 1.92 Nitriding/0.5*	*Ø75.5*	*0.050-0.070*	

M

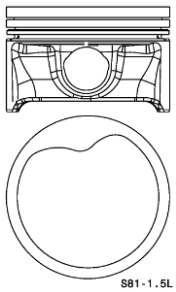
Applications

2



Ø75.5

S81-YPR /PETROL ENGINE/ 4 CYL./ 1497 CM^3/2V/59 (KW)/ 80(HP)/ 9.7:1/83.6MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 S81-1.5L	*CH=28.7* *VD=2.18* *CD=3.4* *TL=46*	*Ø20* * *49*	*R 1.2 Nitriding/0.2-0.4* *M 1.2 Ph / 0.35-0.55* *3S 2 Nitriding/0.2-0.7*	*Ø75.5*	*0.03-0.05mm*	

Applications

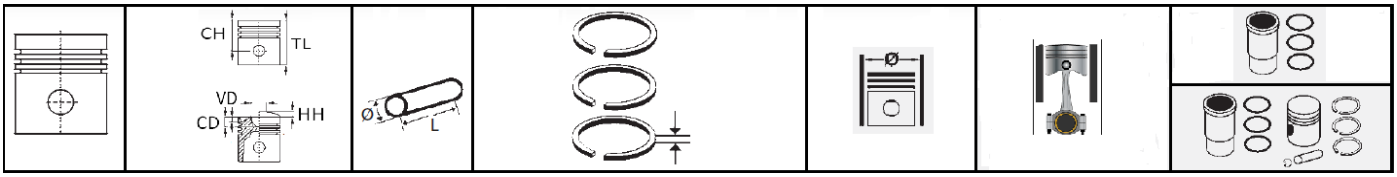
M

	Cyl.	x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	Power
OM 355 NA	6	128*150	11581	2	17.2:1	136-191	185-280
OM 314	4	97*128	3780	2	16:1	35-66	47-90
OM 360	6	115*140	8725	2	16.8:1	81-141	192-210
OM 364 LA E2	4	97.5*133	3972	2			
OM 457 LA	6	128*155	11970	2	17.25:1	260-315	354-428
OM 521	6	130*150	11946	4	17.25:1	260-315	354-428
OM 904 LA	4	102*130	4250	2	17.4:1	90-142	122-190

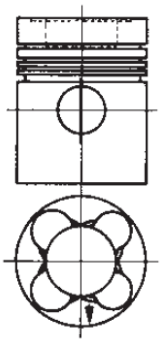
M

1



Ø128

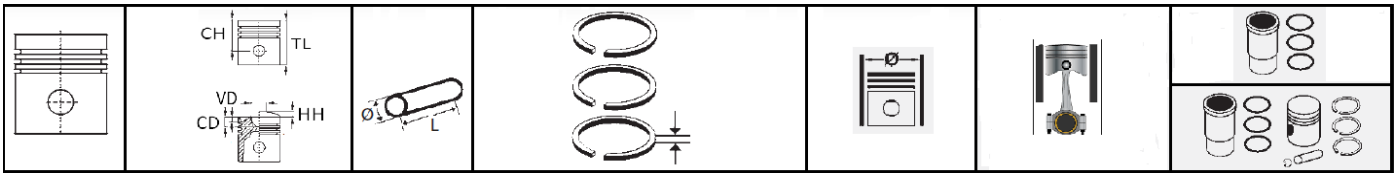
OM 355 NA /DIESEL ENGINE/ 6 CYL./ 11581 CM^3/2V/136-191 (KW)/ 185-280(HP)/ 17.2:1/150MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=90.26 VD=1.10 CD=27.0 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.00	0.11mm	
	CH=90.26 VD=1.10 CD=27.0 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.25	0.11mm	
	CH=90.26 VD=1.10 CD=27.0 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.50	0.11mm	
	CH=90.26 VD=1.10 CD=27.0 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø129.00	0.11mm	
	CH=90.26 VD=1.10 CD=27.0 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø129.5	0.11mm	

M

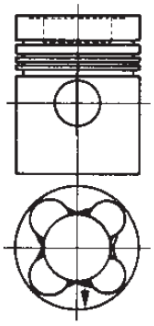
Applications

2



Ø128

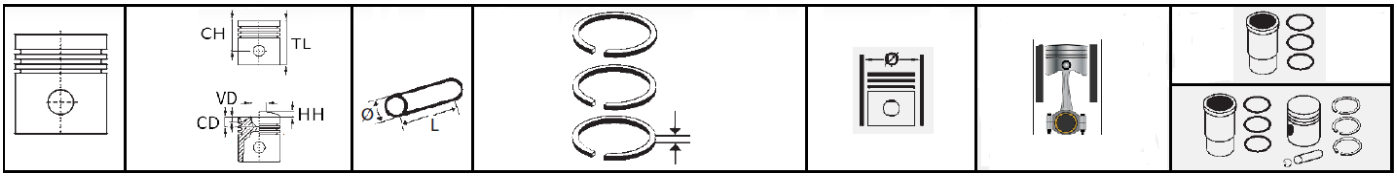
OM 355 TURBO /DIESEL ENGINE/ 6 CYL./ 11581 CM^3/2V/136-191 (KW)/ 185-280(HP)/ 17.2:1/150MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=90.26 VD=2.2 , 2 CD=28.5 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.00	0.12mm	
	CH=90.26 VD=2.2 , 2 CD=28.5 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.25	0.12mm	
	CH=90.26 VD=2.2 , 2 CD=28.5 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø128.50	0.12mm	
	CH=90.26 VD=2.2 , 2 CD=28.5 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø129.00	0.12mm	
	CH=90.26 VD=2.2 , 2 CD=28.5 TL=161.26	Ø48 * 108	3.5 GOE / 0.3-0.55 3.5 GOE / 0.5-0.75 3.5 GOE/0.35-0.6 6.5 GOE/0.35-0.65	Ø129.50	0.12mm	

M

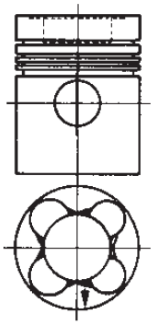
Applications

3



Ø128

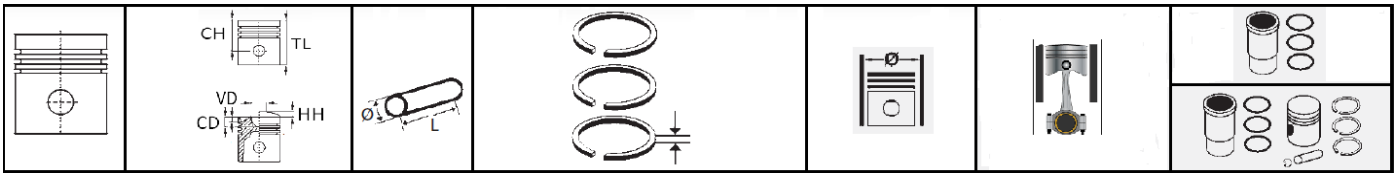
OM 355 /DIESEL ENGINE/ 6 CYL./ 11581 CM^3/2V/136-191 (KW)/ 185-280(HP)/ 17.2:1/150MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=90.25* *CD=22.6* *TL=140.26*		*3 KBA Cr,Ph/0.40-0.60* *2.5 M4 Cr,Ph/0.60-0.80* *4 Dsf-c Cr,Ph/0.25-0.45*	*Ø128.00*	*0.15mm*	
	CH=90.25 *CD=22.6* *TL=140.26*		*3 KBA Cr,Ph/0.40-0.60* *2.5 M4 Cr,Ph/0.60-0.80* *4 Dsf-c Cr,Ph/0.25-0.45*	*Ø128.50*	*0.15mm*	

M

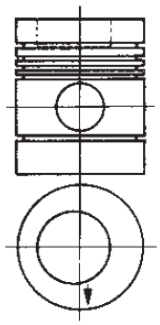
Applications

4



Ø97

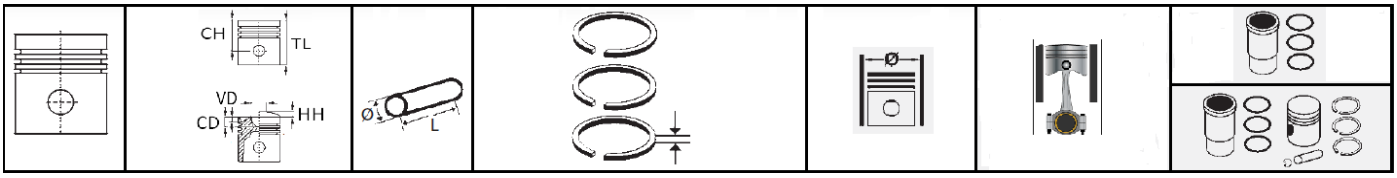
OM 314 /DIESEL ENGINE/ 4 CYL./ 3780 CM^3/2V/35-66 (KW)/ 47-90(HP)/ 16:1/128MM

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 65.2 CD= 20.0 TL= 115.7	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55 DSF 5.5 /0.25-0.50	Ø97.00	0.1mm	
	CH= 65.2 CD= 20.0 TL= 115.7	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55 DSF 5.5 /0.25-0.50	Ø97.25	0.1mm	
	CH= 64.8 CD= 20.0 TL= 115.3	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55 DSF 5.5 /0.25-0.50	Ø97.50	0.1mm	
	CH= 64.6 CD= 20.0 TL= 115.1	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55 DSF 5.5 /0.25-0.50	Ø98.00	0.1mm	
	CH= 64.35 CD= 20.0 TL= 114.85	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55 DSF 5.5 /0.25-0.50	Ø98.50	0.1mm	

M

Applications

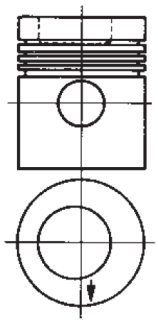
5



Ø97

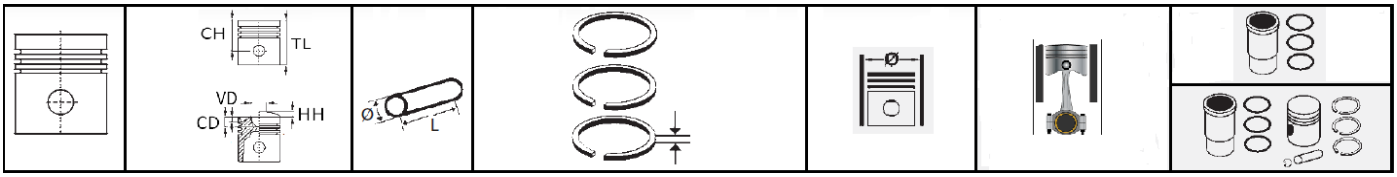
OM 314 /DIESEL ENGINE/ 4 CYL./ 3780 CM^3/2V/35-66 (KW)/ 47-90(HP)/ 16:1/128MM

M

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 65.2 CD= 17.98 TL= 115.7	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55	Ø97.00	0.1mm	
	CH= 64.8 CD= 17.98 TL= 115.3	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55	Ø97.50	0.1mm	
	CH= 64.6 CD= 17.98 TL= 115.1	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55	Ø98	0.1mm	
	CH= 64.35 CD= 17.98 TL= 114.85	Ø36 * 82.5	T 3 top/0.35-0.60 M 3 top/0.35-0.60 M 3 top/0.35-0.60 DSF 5.5 /0.25-0.55	Ø98.50	0.1mm	

Applications

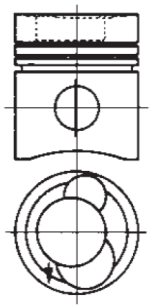
6



Ø115

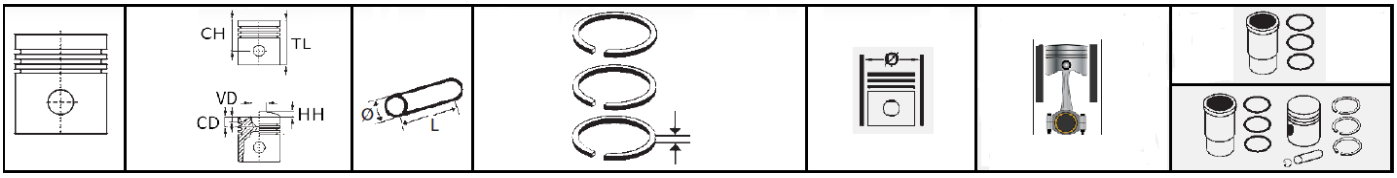
OM 360 /DIESEL ENGINE/ 6 CYL./ 8725 CM^3/2V/81-141 (KW)/ 110-192(HP)/ 16.8:1/140MM

M

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH= 85.3* *VD= 0.7* *CD= 22.0* *TL= 133.3*	*Ø42* *** *98*	*T 3.5 / 0.25-0.5* *3 TOP/0.25-0.5* *DSF 5.5 / 0.3-0.55*	*Ø115*	*0.120MM*	

Applications

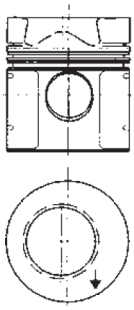
7



Ø97

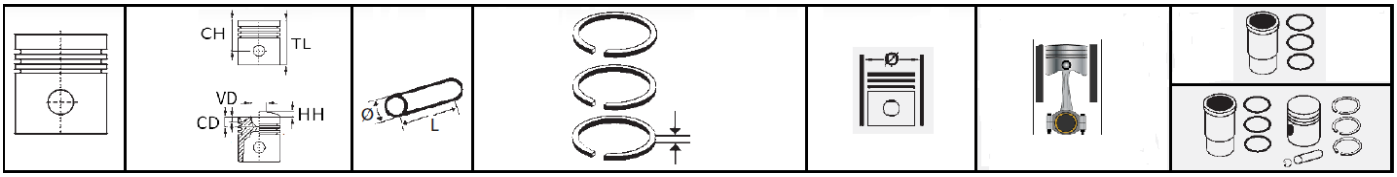
OM 364 LA E2 /DIESEL ENGINE/ 4 CYL./ 3972 CM^3/2V/133MM

M

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 63.00 VD= --- CD= 23 TL= 108	Ø36 * 82.5	2.5 TBA Mollybden/0.2-0.35 2.5 M Cr / 0.2-0.35 4 DSF-C Cr/0.25-0.45	Ø97.50	0.120MM	

Applications

8



Ø128

OM 457 LA /DIESEL ENGINE/ 6 CYL./ 11970 CM^3/2V/260-315 (KW)/354-428 (HP)/ 17.25:1/155MM

M

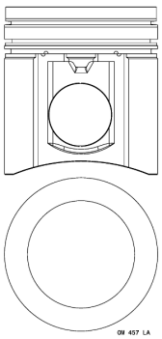
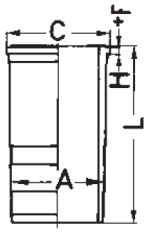
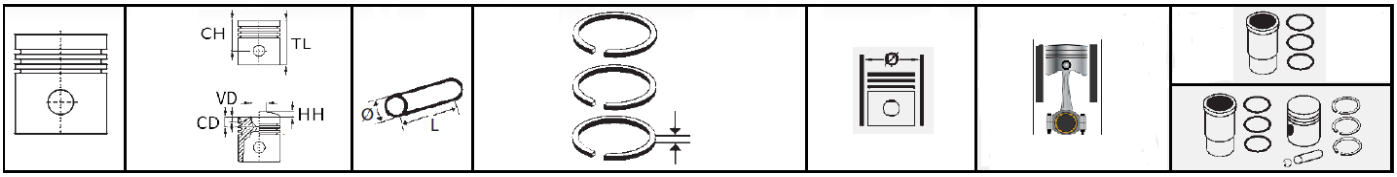
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=90.05* *HH=---* *VD=---* *CD=15.85* *TL=140.05*	*Ø52* *** *103*	*3 TBA / 0.45-0.60* *3 M / 0.4-0.55* *4 DSF / 0.4-0.55*	*Ø128*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144.5*	*128*	*155.5*	*1.1*	*266*	*10.12*		

Applications

9



Ø130

OM 521 /DIESEL ENGINE/ 6 CYL./ 11946 CM^3/4V/260-315 (KW)/354-428 (HP)/ 17.25:1/150MM

M

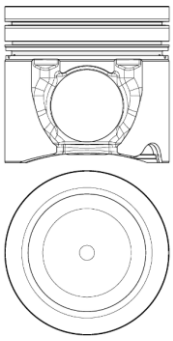
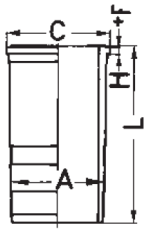
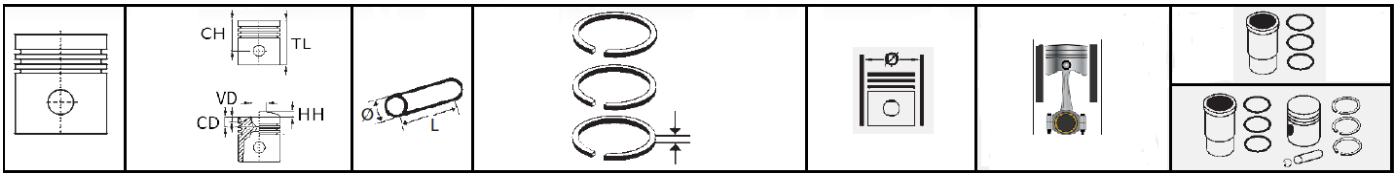
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=78.55* *HH=---* *VD=---* *CD=16.25* *TL=123.55*	*Ø52* * *103*	*3 TBA / 0.35-0.55* *3 M5 / 0.4-0.6* *4 DSF-C / 0.5-0.7*	*Ø130*	*0.13*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*150*	*130*	*161.1*	*1.1*	*258*	*10.12*		

Applications

10



Ø102

OM 904 LA /DIESEL ENGINE/ 6 CYL./ 4250 CM^3/4V/90-142 (KW)/122-190 (HP)/ 17.4:1/130MM

M

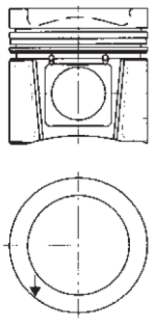
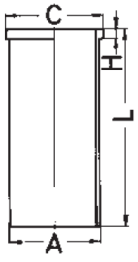
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=64.4* *HH=---* *VD=---* *CD=13.9* *TL=102.4*	*Ø42* *** *80*	*R 3 Cr,Ph/0.3-0.5* *M 2.5 Cr,Ph/0.4-0.6* *Dsf-c 4 Cr,Ph/0.3-0.5*	*Ø102*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*106*	*100*	*109.5*	*---*	*220*	*6.2*		

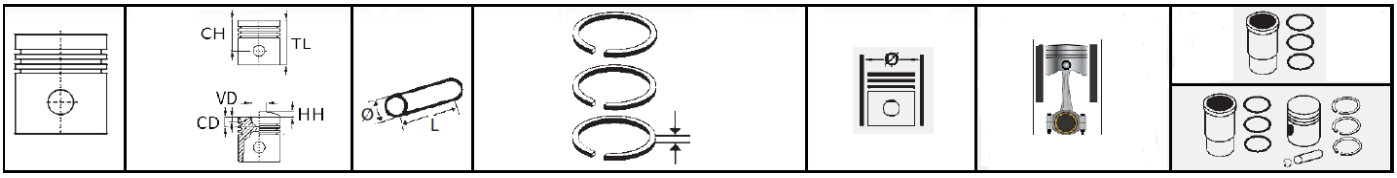
Applications

	Cyl.	ø x mm	cm^3			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	Power
Z 24	4	89	2400	2	9:1	100	135

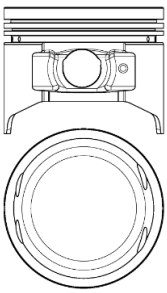
N

1



Ø89

Z 24 /PETROL ENGINE/ 4 CYL./ 2400 CM^3/2V/100 (KW)/ 135(HP)/ 9:1

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=34 VD=1.1,,2 CD=4 TL=70.5	Ø21 * 66.5	R 2 N/ 0.28-0.43 M 1.5 Ph / 0.45-0.60 3S 4 Nitriding / 0.2-0.70 (RIKEN OF JAPAN)	Ø89.01	0.035mm	
	CH=34 VD=1.1,,2 CD=4 TL=70.5	Ø21 * 66.5	R 2 N/ 0.28-0.43 M 1.5 Ph / 0.45-0.60 3S 4 Nitriding / 0.2-0.70 (RIKEN OF JAPAN)	Ø89.275	0.035mm	
	CH=34 VD=1.1,,2 CD=4 TL=70.5	Ø21 * 66.5	R 2 N/ 0.28-0.43 M 1.5 Ph / 0.45-0.60 3S 4 Nitriding / 0.2-0.70 (RIKEN OF JAPAN)	Ø89.525	0.035mm	
	CH=34 VD=1.1,,2 CD=4 TL=70.5	Ø21 * 66.5	R 2 N/ 0.28-0.43 M 1.5 Ph / 0.45-0.60 3S 4 Nitriding / 0.2-0.70 (RIKEN OF JAPAN)	Ø89.775	0.035mm	
	CH=34 VD=1.1,,2 CD=4 TL=70.5	Ø21 * 66.5	R 2 N/ 0.28-0.43 M 1.5 Ph / 0.45-0.60 3S 4 Nitriding / 0.2-0.70 (RIKEN OF JAPAN)	Ø90.025	0.035mm	

N

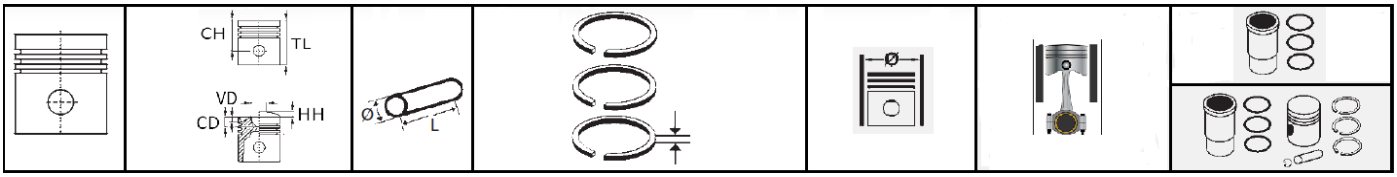
Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	Power
4.236	4	98.48*126.8	3864	2	16:1	48-60	59-80
4.248	4	101*126.8	4064	2	16:1	53-66	72-90
4.40	4	100*127.3	3990	2	16:1	82-88	112-120
6.60	6	100-127.3	5984	2	17.3:1	154	210

P

1



Ø98.48

4.236 / diesel- engine / 4 cyl. / 3864cm3 / 2V / 48-60 kw / 59-80 hp / 16:1 / 126.8mm

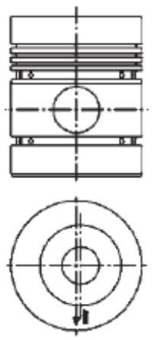
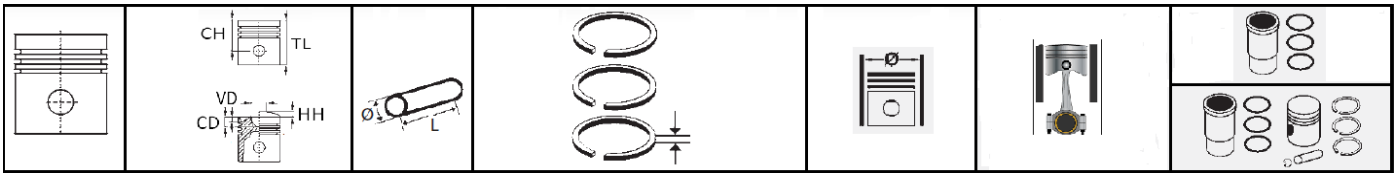
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=70.3 HH=--- VD=--- CD=20.4 TL=121.1	Ø34.925 * 84.1	2.38 M2 CR,PH/0.35-0.6 2.38 R PH/0.35-0.60 2.38 R PH/0.35-0.60 6.33 D PH/ 0.30-0.55 6.33 S PH/0.30-0.55	Ø98.48	0.15mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	103.266	98	106.426	0.838	227.28	73.861		

Applications

P

2



Ø101

4.248 / diesel-engine / 4cyl. / 4064cm3 / 2V / 53-66kw / 72-90hp / 16:1 / 126.8mm

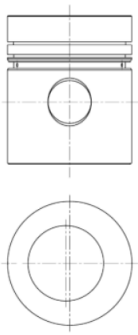
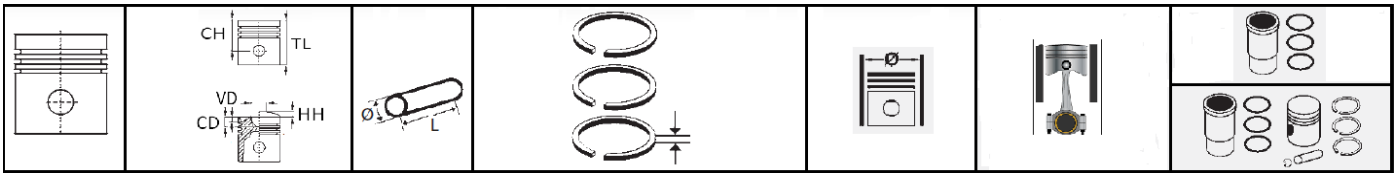
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	Grade L: CH=69.929, CD=20.759, TL=120.7 Grade M: CH=70.025, CD=20.855, TL=120.8 Grade H: CH=70.122, CD=20.952, TL=120.9	Ø34.925 * 84.1	2.5 MOL,PH/0.41-0.66 2.5 PH/0.4-0.65 5 CR,PH/0.4-0.65	*Ø101.01*	*0.057mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*104.28*	*101*	*107.442*	*0.838*	*227.28*	*3.861*		

Applications

P

3



Ø101

4.248 / diesel-engine / 4cyl. / 4064cm3 / 2V / 53-66kw / 72-90hp / 16:1 / 126.8mm

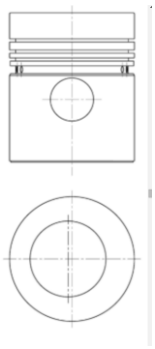
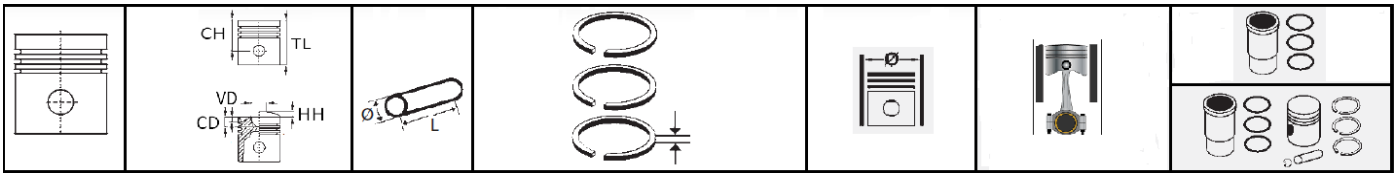
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=70.2 HH=--- VD=--- CD=21 TL=121	Ø34.925 * 84.1	2.385 R CR,PH/0.40-0.65 2.385 R FERROX/0.3-0.48 2.385 R FERROX/0.3-0.48 6.335 /0.41-0.58	*Ø100.91*	*0.140mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*104.28*	*101*	*107.442*	*0.838*	*227.28*	*3.861*		

Applications

P

4



Ø100

4.40 / diesel_engine / 4 CYL. / 3990cm3 / 2V / 82-88kw / 112-120hp / 16:1 / 127.3mm

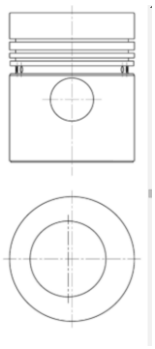
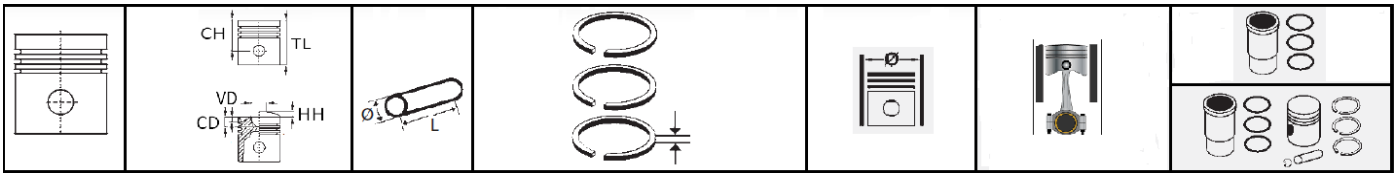
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=70.391 HH=--- VD=--- CD=21.75 TL=108.231	Ø39.7 * 78	3.5 TBA PH/0.28-0.43 2.5 NM PH/0.4-0.65 4 DSF-C CR/0.38-0.63	*Ø100*	*0.11mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*104.231*	*100*	*107.442*	----	*227.477*	*3.861*		

Applications

P

5



Ø100

6.60 / diesel-engine / 6cyl. / 5984cm3/ 2V / 154kw / 210hp / 17.3:1 / 127.3mm

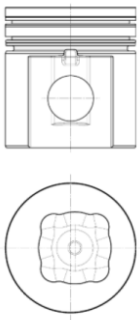
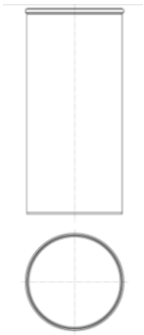
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	Grade L: CH=70.00, CD=20.14, TL=108.00 Grade H: CH=70.14, CD=20.14, TL= 108.14	Ø34.925 * 84.1	2.5 BA MOL/0.3-0.55 2.5 NM PH/0.4-0.65 4 DSF-C CR/0.38-0.63	Ø100	0.07mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	104.231	100	107.442	----	227.477	3.891		

Applications

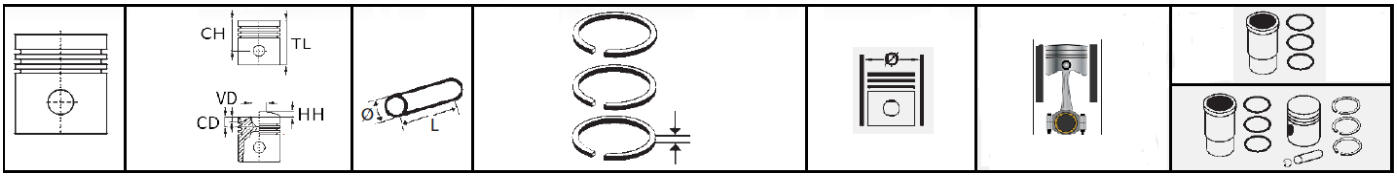
P

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
XU7 JP	4	83*81.4	1762	2	9.25:1	73-76	99-103
XU9 CTR	4	83*88	1905	2	10.2:1	93-95	126-129
TU3 JP	4	75*77	1361	2	10.2:1	54-55	73-75
TU5 JP4	4	78.5*82	1587	2	11:1	80	109

P

1



Ø 83

XU9 2ctr / PETROL ENGINE / 4 CYL. /1905CM^3 / 2 V /93-95 KW / 126-129 PS /10.2:1 / 88 mm

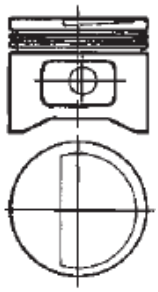
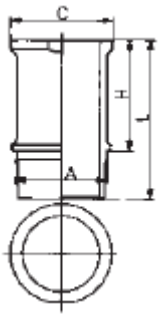
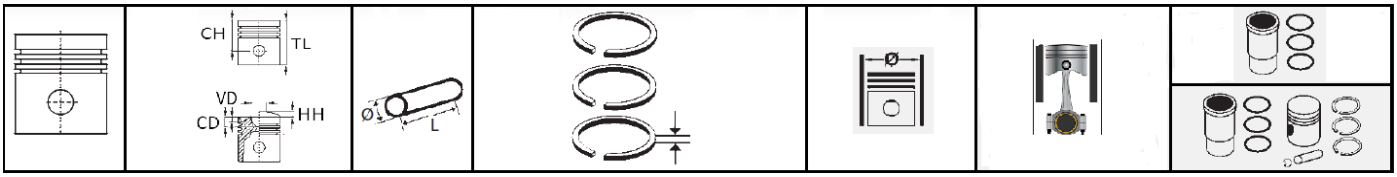
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=37.5 HH=--- VD=--- CD=3.0 TL=67.5	Ø22 * 66.2	1.75 Ph /0.15-0.35 1.75 Ph / 0.40-0.60 4 Cr,Ph / 0.25-0.45	Ø83	0.09mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	88.6	83	97	---	141	95.135		

Applications

P

2



Ø83

XU7 JPL3 / PETROL ENGINE / 4 CYL. /1762CM^3 / 2 V /73-76 KW / 99-103 PS /9.25:1 / 81.4 mm

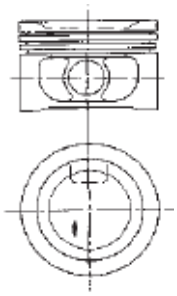
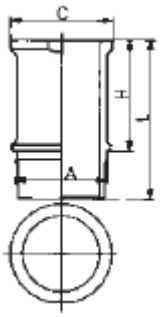
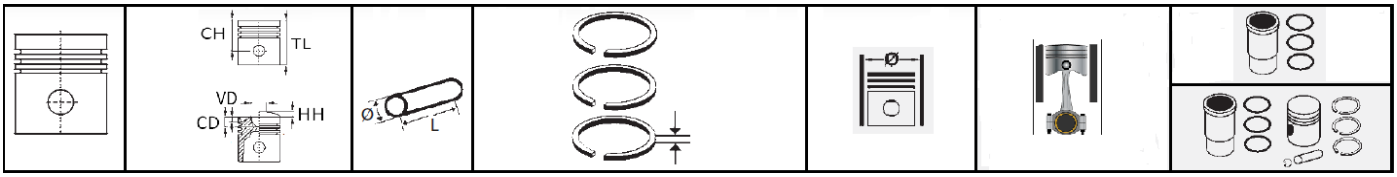
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=33.3 HH=--- VD=--- CD=4.13 TL=53.3	Ø22 * 62	1.5 B Cr,Ph / 0.2 1.5 NM4 Ph / 0.4 3 u-flex Ph/ → Alternative 3 Dsf Ph /0.25-0.50	Ø83	0.033-0.057	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	88.6	83	97	---	141	95.135		

Applications

P

3



Ø 75

TU3 JPL4 / PETROL ENGINE / 4 CYL. /1361CM^3 / 2 V /54-55 KW / 73-75 PS /10.2:1 / 77 mm

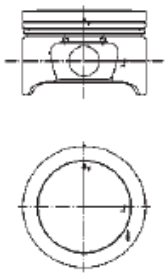
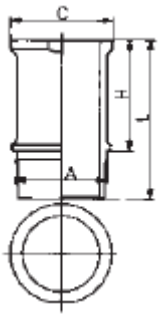
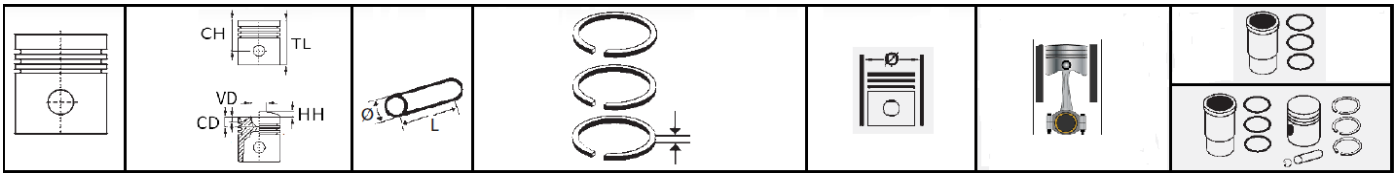
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=27.75 HH=0.18 VD=--- CD=--- TL=49.75	Ø17.97 4 * 55	1.5 B Goe 230/0.15-0.30 1.5 Nm3 Ph/0.20-0.40 2.5 Ph/0.25-0.50	ØA=75.000 ØB=75.010 ØC=75.020	0.040-0.060	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	79.5	75	89.2		135.4	90		

APPLICATION

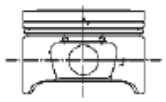
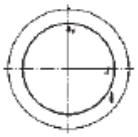
P

4



Ø 78.509

TU5 JP4/ PETROL ENGINE / 4 CYL. /1587CM^3 / 2 V /80 KW / 109 PS /11:1 / 82 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 32.35 HH= 0.15 TL= 54.35	Ø19.49 5 * 57	1.2 KB / 0.10-0.25 1.5 NM / 0.30-0.50 2.5 DSF-C CHROM/0.25-0.5	Ø78.509	0.025-0.057	
	CH= 32.35 HH= 0.15 TL= 54.35	Ø19.49 5 * 57	1.2 KB / 0.10-0.25 1.5 NM / 0.30-0.50 2.5 DSF-C CHROM/0.25-0.	Ø78.759	0.025-0.057	
	CH= 32.35 HH= 0.15 TL= 54.35	Ø19.49 5 * 57	1.2 KB / 0.10-0.25 1.5 NM / 0.30-0.50 2.5 DSF-C CHROM/0.25-0.	Ø79.009	0.025-0.057	
	CH= 32.35 HH= 0.15 TL= 54.35	Ø19.49 5 * 57	1.2 KB / 0.10-0.25 1.5 NM / 0.30-0.50 2.5 DSF-C CHROM/0.25-0.	Ø79.259	0.025-0.057	
	CH= 32.35 HH= 0.15 TL= 54.35	Ø19.49 5 * 57	1.2 KB / 0.10-0.25 1.5 NM / 0.30-0.50 2.5 DSF-C CHROM/0.25-0.	Ø79.509	0.025-0.057	

P

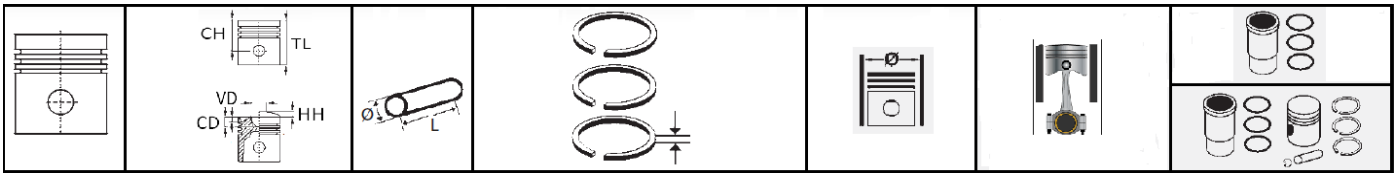
Applications

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
K4M	4	79.5*80.5	1598	4	10:1	70-85	95-116
P.K	4	71*83.6	1323	2	9.7:1	40	52.3
688	4	70*72	1108	2	8.3:1	25	34
MIDR D	6	102*126	6177	2	17.5:1	159-166	216-226
MIDR	6	120*145	9839	2	17:1	250	340

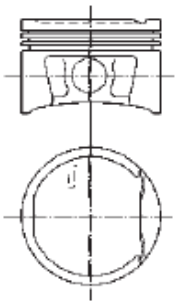
R

1



Ø 79.5

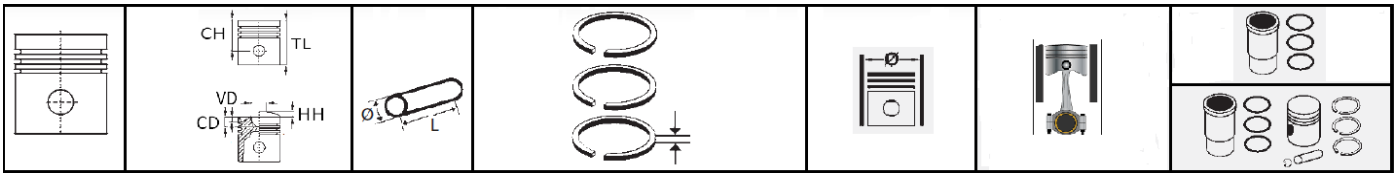
K4M / PETROL ENGINE / 4 CYL. /1598CM^3 / 4 V /70-85 KW /95-116 PS /10:1 / 80.5 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 31.7 CD= 1.3 TL= 55	Ø19.49 5 * 57	1.5 B Cr,Ph /0.20-0.40 1.5 NM Ph / 0.4-0.6 2.5 NIFFLEX-H Ph,Cr/0.2-0.7	Ø79.50	0.02-0.04mm	
	CH= 31.7 CD= 1.3 TL= 55	Ø19.49 5 * 57	1.5 B Cr,Ph /0.20-0.40 1.5 NM Ph / 0.4-0.6 2.5 NIFFLEX-H Ph,Cr/0.2-0.7	Ø80.00	0.02-0.04mm	
	CH= 31.7 CD= 1.3 TL= 55	Ø19.49 5 * 57	1.5 B Cr,Ph /0.20-0.40 1.5 NM Ph / 0.4-0.6 2.5 NIFFLEX-H Ph,Cr/0.2-0.7	Ø80.50	0.02-0.04mm	

R

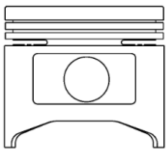
Applications

2



Ø71

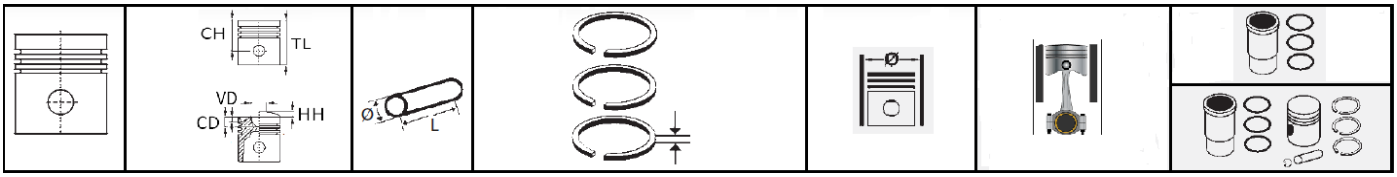
P.K / PETROL ENGINE / 4 CYL. /1323CM^3 / 2 V /40 KW /53.2 PS /9.7:1 / 83.6 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	*CH=32.5* *VD=4.14,4.81* *TL=62.8*		*R 1.2 N* *M 1.5 FR* *3S 3 N*	*Ø71.000*	*0.039-0.052*	

R

Applications

3



Ø70

688 / PETROL ENGINE / 4 CYL. /1108CM^3 / 2 V /25 KW /34 PS /8.3:1 / 72 mm

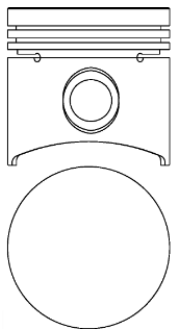
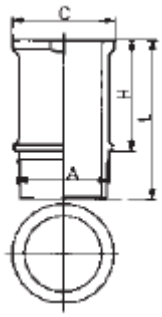
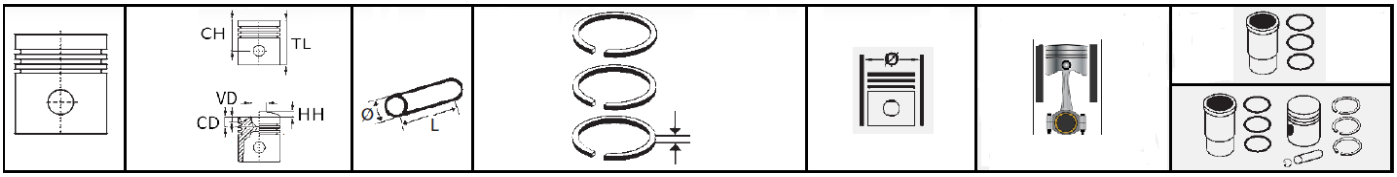
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=40* *HH=---* *VD=---* *CD=---* *TL=68*	*Ø18* *** *62*	*1.75 Cr,Ph/0.25-0.45* *2 Ph/0.15-0.45* *4 Ph/0.1-0.35*	*Ø70*	*0.6mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*75.5*	*70*	*86*	*---*	*135*	*95*		

Applications

4



Ø102

MIDR D / DIESEL ENGINE / 6 CYL. /6177CM^3 / 2 V /159-166 KW /216-226 PS /8.3:1 / 126 mm

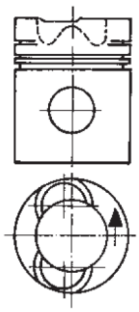
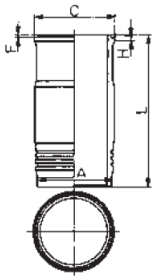
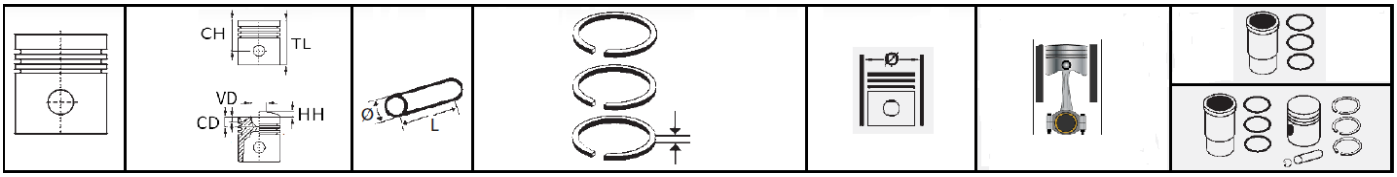
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=71.23* *HH=---* *VD=0.8* *CD=20.83* *TL=108.23*	*Ø41.97* *8* *** *84*	*T 3.5 Mol/0.25-0.45* *M 2.5 Cr/0.3-0.5* *Dsf-c 4 Cr,Ph/0.3-0.55*	*Ø102*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*114*	*102*	*122.5*	*0.8*	*218*	*8.0*		

Applications

R

5



Ø120

MIDR / DIESEL ENGINE / 6 CYL. /9839CM^3 / 2 V /250 KW /340 PS /8.3:1 / 126 mm

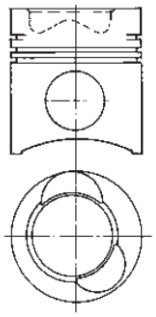
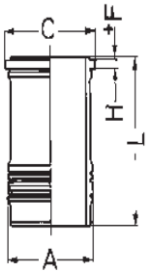
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=83.8* *HH=---* *VD=1.3* *CD=26.5* *TL=134.8*	*Ø50* *** *97.5*	*T 3.5 /0.40-0.65* *M 3 /0.80-1.03* *Dsf-c 4 Cr /0.40-0.65*	*Ø120*		

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*135*	*120*	*147.4*	*0.7*	*257*	*9.38*		

Applications

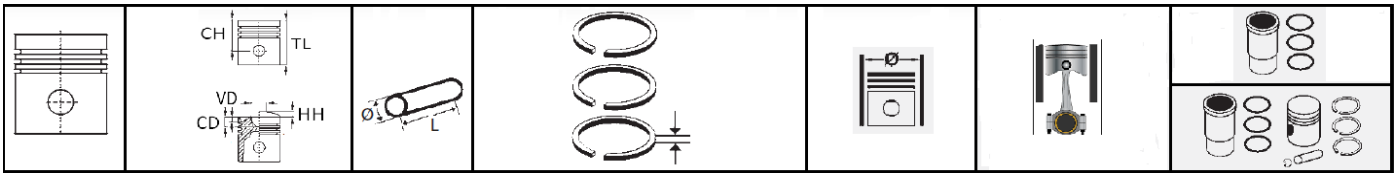
R

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
M13 E4	4	71*83.6	1323	2	10:1	48	63

S

1



Ø71

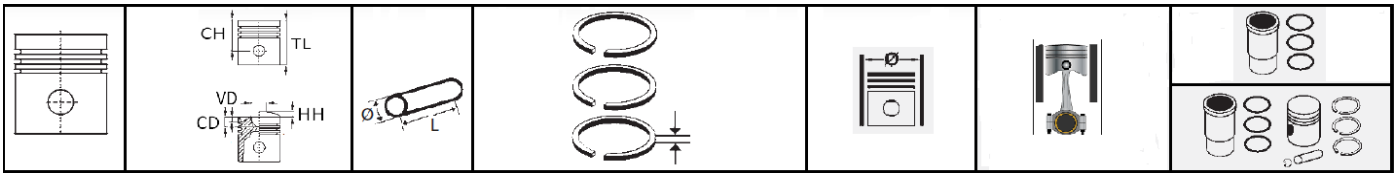
M13 E4 / PETROL ENGINE / 4 CYL. /1323CM^3 / 2 V /48 KW /63 PS /9.7:1 / 83.6 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=28.5 CD=0.6 TL=45.4	Ø20 * 48	R 1.2 Nitriding/0.15-0.30 M 1.2 Ph/ 0.40-0.55 3S 2 Nitriding/0.1-0.4	Ø71		

S

Applications

2



Ø71

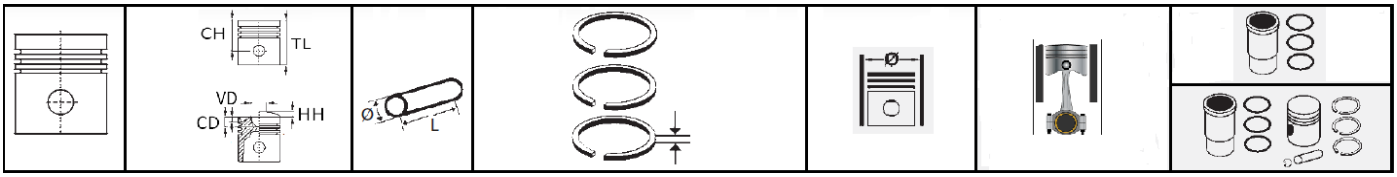
M13 E4 / PETROL ENGINE / 4 CYL. /1323CM^3 / 2 V /48 KW /63 PS /9.7:1 / 83.6 mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 28.7 VD= 4.44,3.56 CD= 1 TL= 58	Ø20 * 52	R 1.2 G.Nitriding/0.15-0.30 M 1.5 ferrox /0.15-0.30 3S 3 G.nitriding/0.2-0.7	Ø71	0.039-0.052mm	

S

Applications

3



Ø71

M13 E4 CNG / PETROL ENGINE / 4 CYL. /1323CM^3 / 2 V /48 KW /63 PS /9.7:1 / 83.6 mm

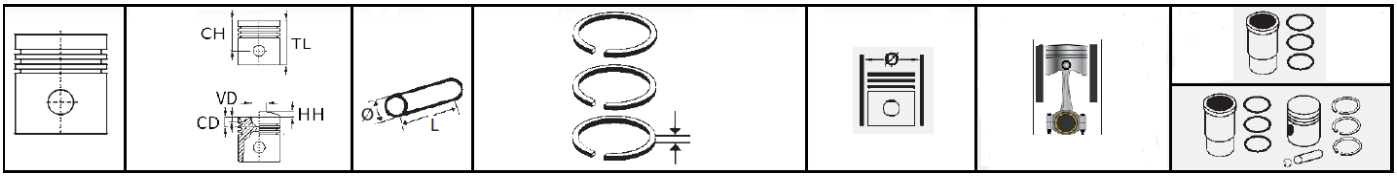
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 29.1 VD= - 0.9 CD= -0.6 TL= 58.4	Ø20 * 52	R 1.2 G.Nitriding/0.15-0.30 M 1.5 ferrox /0.15-0.30 3S 3 G.nitriding/0.2-0.7	Ø71	0.039- 0.052mm	
Applications						

S

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
D11.75	6	127*145	11022	2	16:1	149	202
DS 14	6	127*140	14181	2	15.5:1	257	350
DS11	6	127*145	11022	2	15:1	184-213	250-290
DS 14 E1	8	127*140	14181	2	16:1	309-333	420-453
DSC 11	6	127*145	11022	2	15:1	245	333
DSC 14 E2	8	127*140	14181	2	16:1	368	500

S



1

Ø127

Scania D 11.75/ diesel engine/ 6 cyl./ 11022 cm^3 / 2 V/ 149 kw/ 202 HP/ 16:1/ 145mm

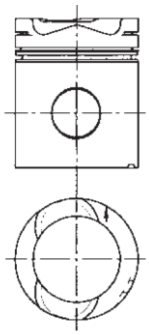
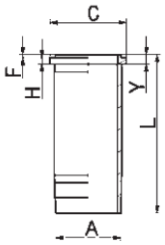
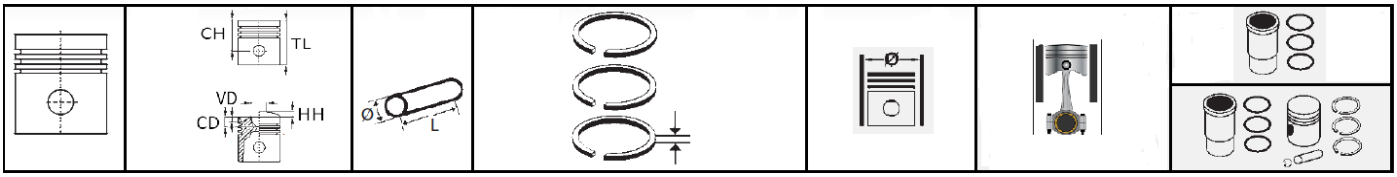
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=98.76* *HH=---* *VD=2.96* *CD=16.52* *TL=156.26*	*Ø50* *** *108*	*T 3.5 Cr,Ph / 0.45* *M 2.385 Ph/0.40* *DSF-C 4.747 Cr,Ph/0.40*	*Ø127*	*0.13mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*140*	*127*	*153.8*	*0.8*	*291*	*7. 9*		

Applications

S



2

Ø127

Scania DS 14/ diesel engine/ 8 cyl./ 14181 cm^3/ 2 V/ 257 kw/ 350 ps/ 15.5:1/ 140mm

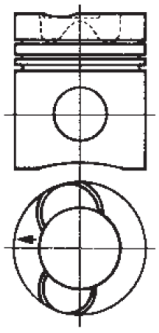
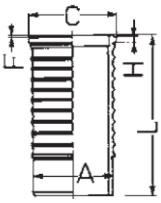
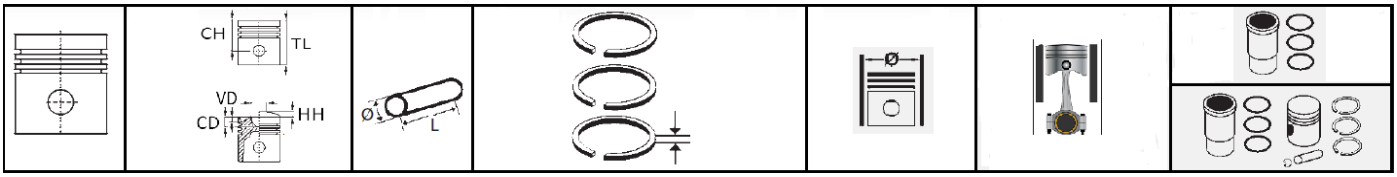
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=94.67 HH=--- VD=2.92 CD=15.06 TL=146.67	Ø50 * 108	3.5 Kb Cr,Ph/0.45 2.385 M Ph/0.40 4.747 DSF-C Cr,Ph/0.40	Ø127	0.14mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR* (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	139.5	127	155.8	0.4	276	10.05		

Applications

S

3



Ø115

Scania DS 9/ diesel engine/ 6 cyl./ 8974 cm^3/ 2 V/ 191 kw/ 260 ps/ 18:1/ 144mm

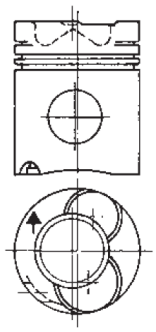
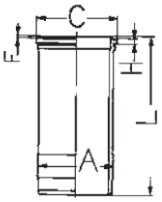
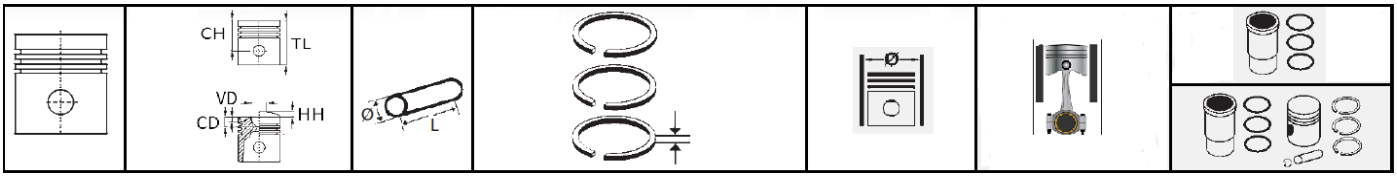
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=87.4* *HH=---* *VD=2.4* *CD=20.23* *TL=139.4*	*Ø50* *** *92*	*T 3.5 Cr/0.35-0.55* *M 2.385 /0.35-0.6* *DSF-C 4.747 Cr/0.35-0.65*	*Ø115*	*0.12mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*133*	*115.5*	*140.82*	*0.83*	*256.6*	*10.26*		

Applications

S

4



Ø127

Scania DS 11/ diesel engine/ 6 cyl./ 11022 cm^3/ 2 V/ 184-213 kw/ 250-290 ps/ 15:1/ 145mm

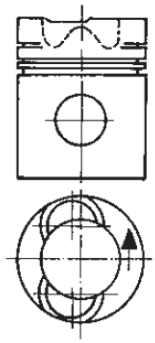
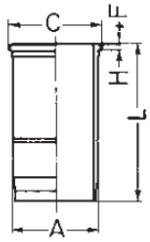
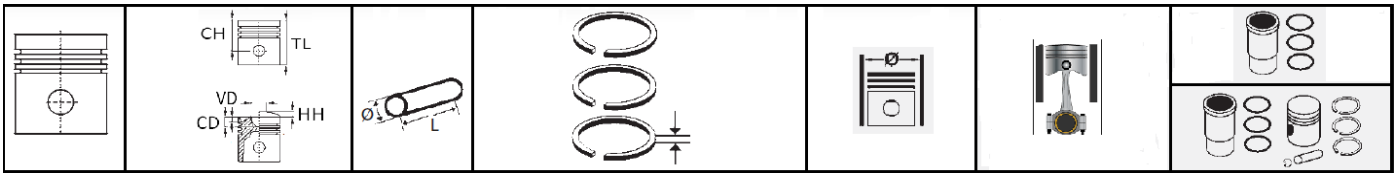
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=98.76 HH=--- VD=2.96 CD=24.5 TL=156.26	Ø50 * 108	3.5 KB Cr,Ph / 0.45 2.385 M Ph / 0.4 4.747 Dsf-c Cr,Ph / 0.4	Ø127	0.13mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	140	127	153.8	0.8	291	7.9		

Applications

S

5



Ø127

DS 14 E1/ diesel engine/ 8 cyl./ 14181 cm^3/ 2 V/ 309-333 kw/ 420-453 ps/ 16:1/ 140mm

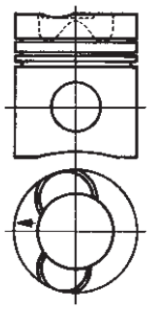
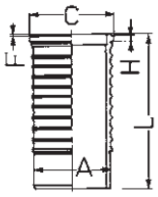
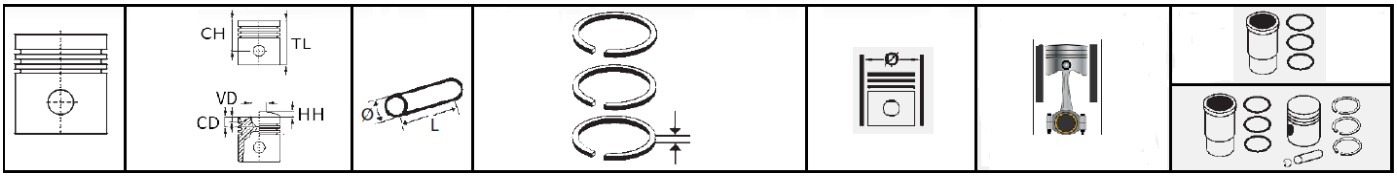
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=94.67* *HH=---* *VD=2.92* *CD=24* *TL=146.67*	*Ø50* *** *108*	*R 3.5 Cr,Ph/0.45* *M 2.385 Ph/0.40* *Dsf-c 4.747 Cr,Ph/0.40*	*Ø127*	*0.15mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*139.5*	*127*	*155.8*	*0.4*	*276*	*10.05*		

Applications

S

6



Ø127

Scania DSC 11/ diesel engine/ 6 cyl./ 11022 cm^3/ 2 V/ 245 kw/ 333 ps/ 15:1/ 145mm

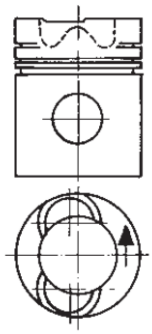
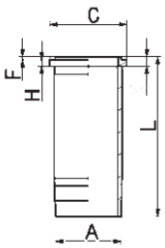
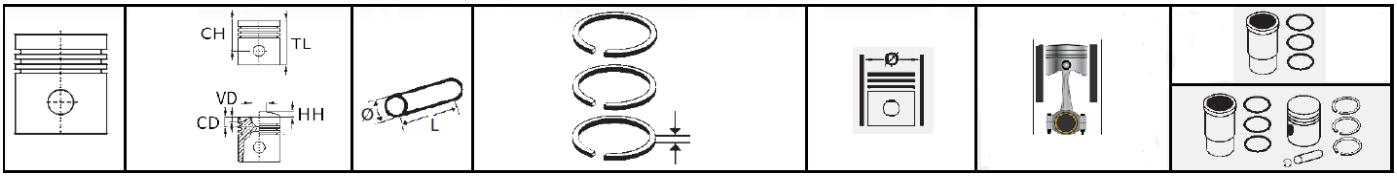
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=98.76* *HH=---* *VD=2.96* *CD=27.06* *TL=156.26*	*Ø50* *** *108*	*R 2.385 Cr / 0.45-0.65* *M 2.385 /0.40-0.65* *M 2.385 /0.40-0.65* *Dsf-c 4.747 Cr/0.40-0.65*	*Ø127*	*0.16mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*140*	*127*	*153.8*	*0.8*	*291*	*7.9*		

Applications

S



7

Ø127

Scania DS 11.112/ diesel engine/ 6 cyl./ 11022 cm^3/ 2 V/ 184-213 kw/ 250-290 ps/ 15:1/ 145mm

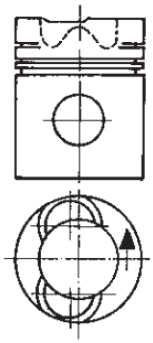
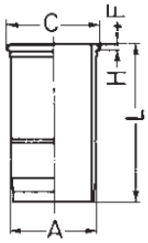
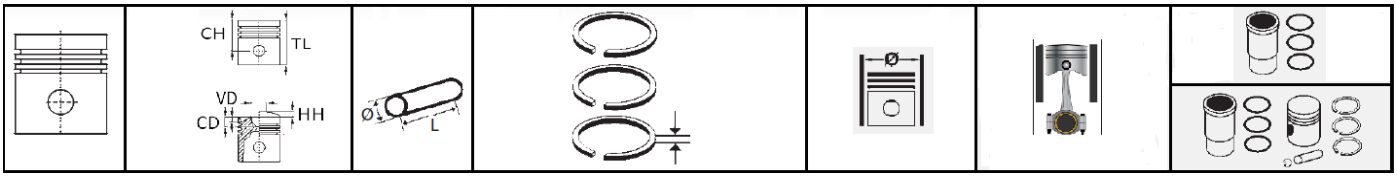
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=98.76* *HH=---* *VD=2.96* *CD=27.06* *TL=156.26*	*Ø50* *** *108*	*R 2.385 Cr / 0.45-0.65* *M 2.385 /0.40-0.65* *Dsf-c 4.747 Cr / 0.4-0.65*	*Ø127*	*0.15mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*140*	*127*	*153*	*0.8*	*291*	*7.9*		

Applications

S

8



Ø127

DS 14 E2/ diesel engine/ 8 cyl./ 14181 cm^3/ 2 V/ 368 kw/ 500 ps/ 16:1/ 140mm

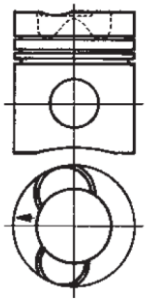
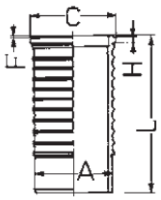
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=94.67* *HH=---* *VD=2.92* *CD=19.59* *TL=146.67*		*T 3.5 Cr,Ph/0.45* *M 2.385 Ph/0.40* *Dsf-c 3.5 Cr,Ph / 0.3*	*Ø127*	*0.14mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*139.5*	*127*	*155.8*	*0.4*	*276*	*10.05*		

Applications

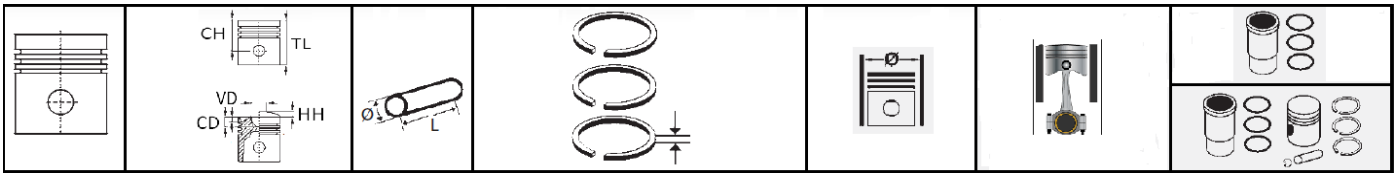
S

	Cyl.	ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
820 PLUS	6	127*135	10300	2	10:1	48	820

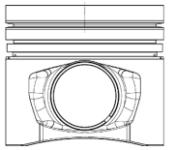
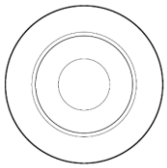
S

1



Ø127

820 PLUS/ diesel engine/ 6 cyl./ 10300 cm^3/ 2 V/ 611 kw/ 820 ps/ 135mm

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
 	*CH= 73* *VD= ---* *CD= 24.5* *TL= 113*	*Ø50* *** *98*	*T 3.5 Cr,Ph/0.4* *M 3 Cr,Ph / 0.35* *DSF-C 4 Cr,Ph / 0.35*	*Ø127*	*0.160mm*	

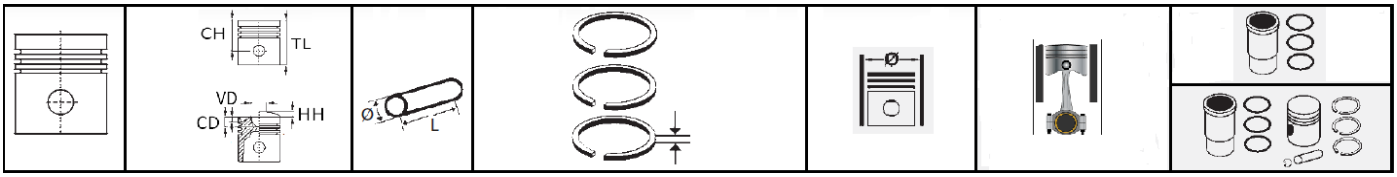
S

Applications

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
D110	4	108*110	4760	2	17:1	36.7	50

1



Ø108

D110/ diesel engine/ 4 cyl./ 4760 cm^3/ 2 V/ 36.7 kw/ 50 ps/ 110mm

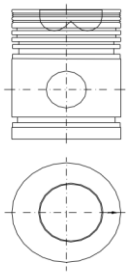
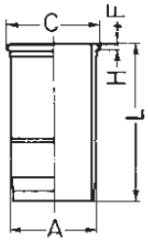
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=87.0 HH=--- VD=--- CD=23.5 TL=141	Ø40 * 88	3 / 0.4-0.65 3 / 0.4-0.65 3 / 0.4-0.65 6 /0.3-0.5 6 / 0.3-0.5	Ø108	0.13	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	122	108	132	1.3	258	10.1		

Applications

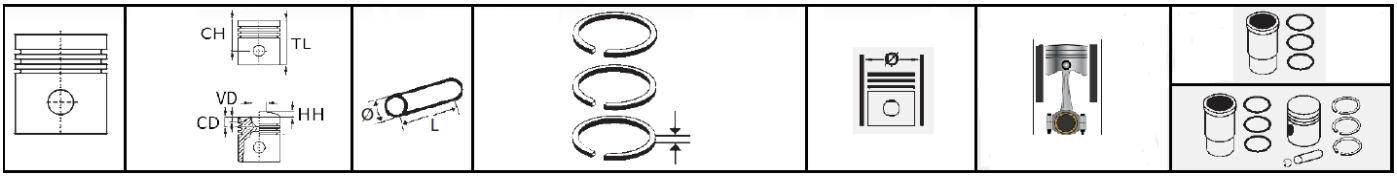
U

	Cyl.	Ø x mm	cm³			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
D9A E3	6	120*138	9364	2	18.6:1	191-280	260-360
TD100A	6	120.65*140	9600	2	15.17:1	169-213	230-290
TD101	6	120.65*140	9600	2	14.3:1	192-222	261-302
TD 120 C,D,S	6	130.175*150	12000	2	----	240-273	326-371
TD121	6	130.175*150	12000	2	14.2:1	243	330
TD122	6	130.175*150	11977	2	-----	207-396	281-538
D12 E3	6	131*150	12130	2	----	250-309	340-420

V

1



Ø120

D9 A E3/ diesel engine/ 6 cyl./ 9364 cm^3/ 2 V/ 191-280 kw/ 260-380 ps/18.6:1/ 138mm

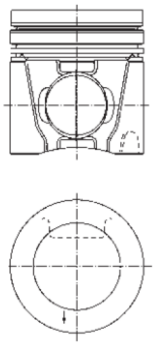
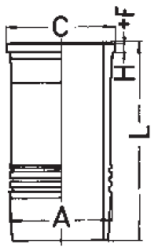
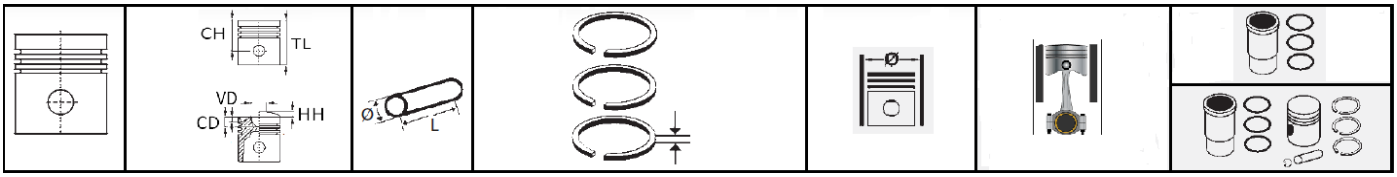
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=85.45 HH=--- VD=--- CD=14.5 TL=129.95	Ø54 * 96	T 4 Molybden/0.35-0.6 M 3 Ph /0.8 Dsf-c 3 Nitriding/0.35-0.6	Ø120	0.115mm	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	138.9	120	149	0.85	249.5	11.2		

Applications

V

2



Ø120

D9 B E5/ diesel engine/ 6 cyl./ 9364 cm^3/ 2 V/ 191-280 kw/ 260-380 ps/18.6:1/ 138mm

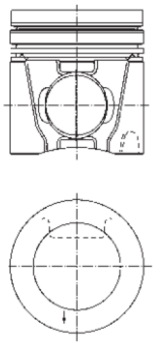
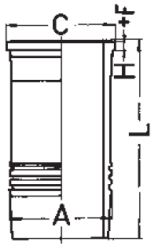
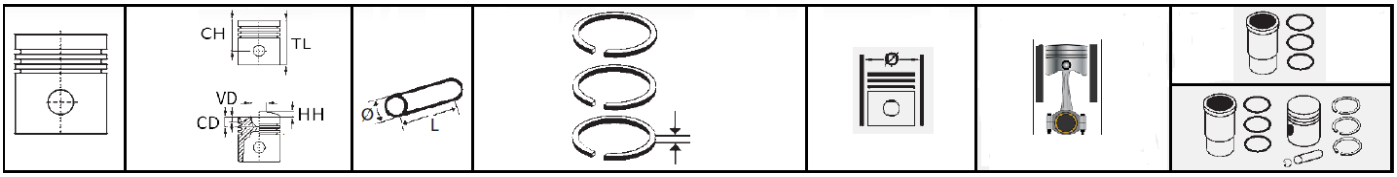
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=85.45* *HH=---* *VD=---* *CD=14.85* *TL=129.95*	*Ø54* *** *96*	*T 3 Cr,Nitride/0.35-0.6* *M 2.5 Nitride/0.8-1.15* *DSF 3 Nitride / 0.35-0.6*	*Ø120*	*0.115mm*	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*138.9*	*120*	*149*	*0.85*	*249.5*	*11.2*		

Applications

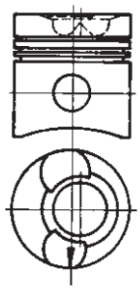
V

3

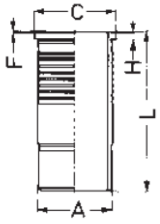


Ø120.48

TD100A/ diesel engine/ 6 cyl./ 9600 cm^3/ 2 V/ 169-213 kw/ 230-290 ps/15.17:1/ 140mm

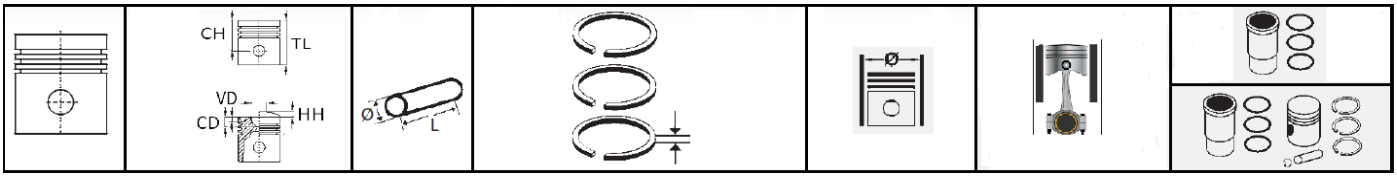
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=109.45* *HH=---* *VD=1.3 & 1.00* *CD=27.65* *TL=166.45*	*Ø52* *** *106*	*R 2.385 Cr /0.4-0.66* *R 3.16 Ferrox/0.4-0.65* *M 3.16 Ferrox /0.4-0.65* *DSF 4.747 Cr /0.33*	*Ø120.48*	*0.16mm*	

V

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*134*	*120*	*147*	*0.78*	*294*	*11.77*		

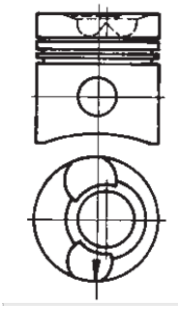
Applications

4

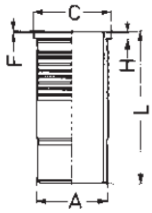


120.64

TD101/ diesel engine/ 6 cyl./ 9600 cm^3/ 2 V/ 192-222 kw/ 261-302 ps/14.3:1/ 140mm

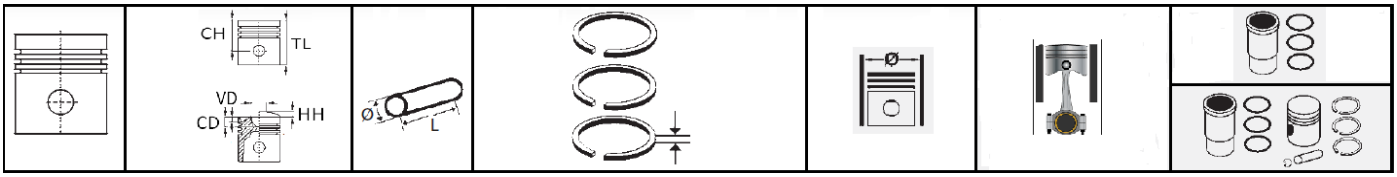
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=109.4* *HH=---* *VD=1.9* *CD=23.15* *TL=166.4*	*Ø52* *** *106*	*R 2.385 Ph/0.4-0.6* *M 3.16 Ph / 0.35-0.6* *DSF 4.747 Cr/0.33*	*Ø120.51*	*0.130mm*	

V

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*134*	*120*	*147*	*3.48*	*296*	*11.52*		

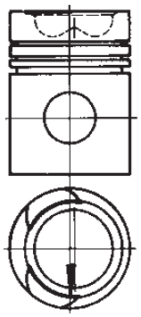
Applications

5

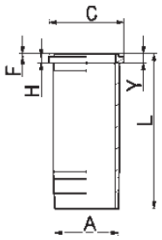


Ø130

TD120 D.C.E/ diesel engine/ 6 cyl./ 12000 cm^3/ 2 V/ 240-273 kw/ 326-371 ps/ 150mm

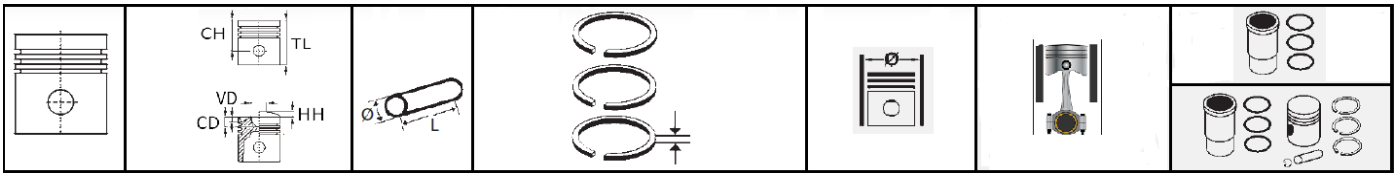
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=114.2* *HH=---* *VD=2.6* *CD=27.62* *TL=175.2*	*Ø55* *** *114*	*R 2.386 Cr/0.4-0.65* *M 3.16 Cr/ 0.35-0.55* *DSF-C 4.75 Cr/0.50-0.70*	*Ø130*	*0.14*	

V

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*143.9*	*130*	*157.6*	*0.7*	*311*	*13.52*		

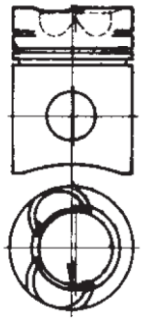
Applications

6

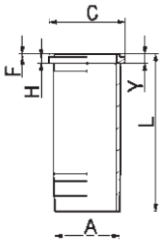


Ø130.18

TD121/ diesel engine/ 6 cyl./ 12000 cm^3/ 2 V/ 243 kw/ 330 ps/ 14.2:1/150mm

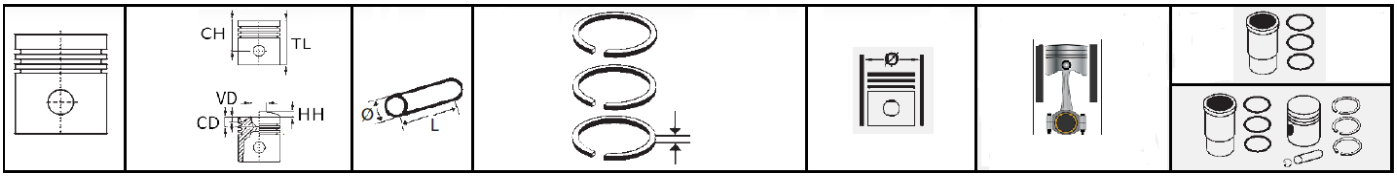
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=114.2* *HH=---* *VD=2.5* *CD=27.95* *TL=175.2*	*Ø55* *** *114*	*R 2.386 Cr/ 0.4-0.65* *M 3.16 Cr/ 0.35-0.55* *DSF-C 4.75 Cr/ 0.50-0.70*	*Ø130.18*	*0.130*	

V

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144*	*130*	*157.6*	*3.28*	*313*	*10.52*		

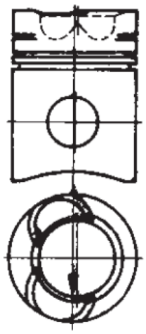
Applications

7

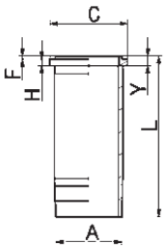


Ø130.18

TD122/ diesel engine/ 6 cyl./ 11977 cm^3/ 2 V/ 207-396kw/ 281-538 ps//150mm

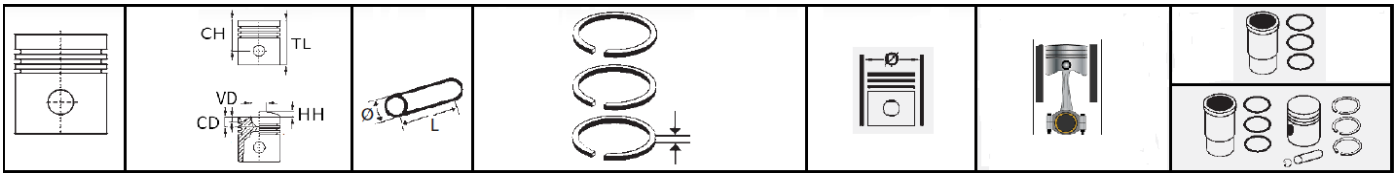
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	*CH=114.2* *HH=---* *VD=2.6* *CD=25.4* *TL=175.2*	*Ø55* *** *114*	*2.386 B Cr/0.4-0.65* *3.16 M Cr/ 0.35-0.55* *4.75 DSF-C Cr/0.50-0.70*	*Ø130.18*	*0.135*	

V

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	*144*	*130*	*157.6*	*3.28*	*313*	*10.52*		

Applications

8



Ø131

D12 E3/ diesel engine/ 6 cyl./ 12130 cm^3/ 2 V/ 250-309kw/ 340-420 ps//150mm

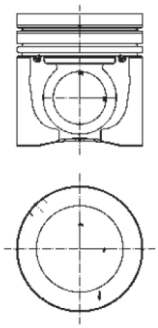
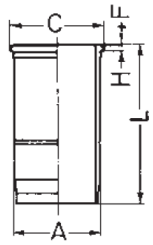
ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=87.4 HH=--- VD=--- CD=17.14 TL=137.4	Ø55 * 107	4 KB mollybden/0.4 5.4 M3 / 0.4-0.65 4 Ph / 0.35-0.65	Ø131	0.16	

ILLUSTRATION	CYL. DESIGNE/ (A)	(B)	COLLAR (C)	(F)	LENGTH (L)	(H)	SEAL SPECIFICATION	KIT SET CODE
	144	131	159.6	0.9	273	11.2		

Applications

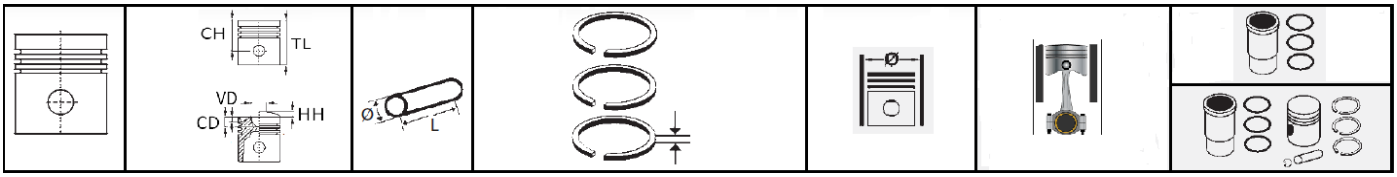
V

	Cyl.	Ø x mm	cm³			kW	PS

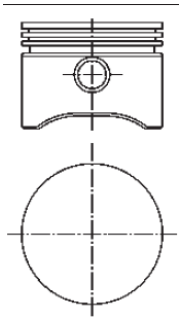
Engine model	number of cylinders		volume		Co. rate	power	power
WESTINGHOUSE		90	-----	2	----	----	-------

W

1



Ø90

ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH=37 TL=67	Ø20 * 60	2.5 M2 / 0.35-0.55 2.5 N / 0.30-0.50 4 SSF-L Ph,/0.3-0.5	Ø90	0.344mm	
	CH=37 TL=67	Ø20 * 60	2.5 M2 / 0.35-0.55 2.5 N / 0.30-0.50 4 SSF-L Ph,/0.3-0.5	Ø90.5	0.344mm	

W

Applications

	Cyl.	Ø x mm	cm^3			kW	PS

Engine model	number of cylinders		volume		Co. rate	power	power
ZMZ	1	90	-----	2	----	----	-------

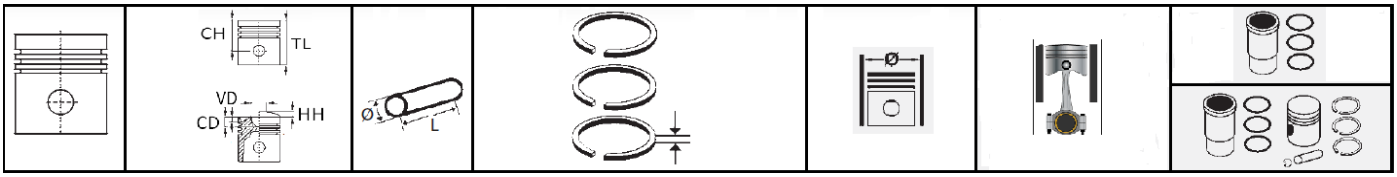
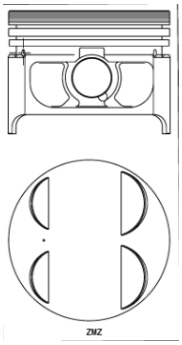
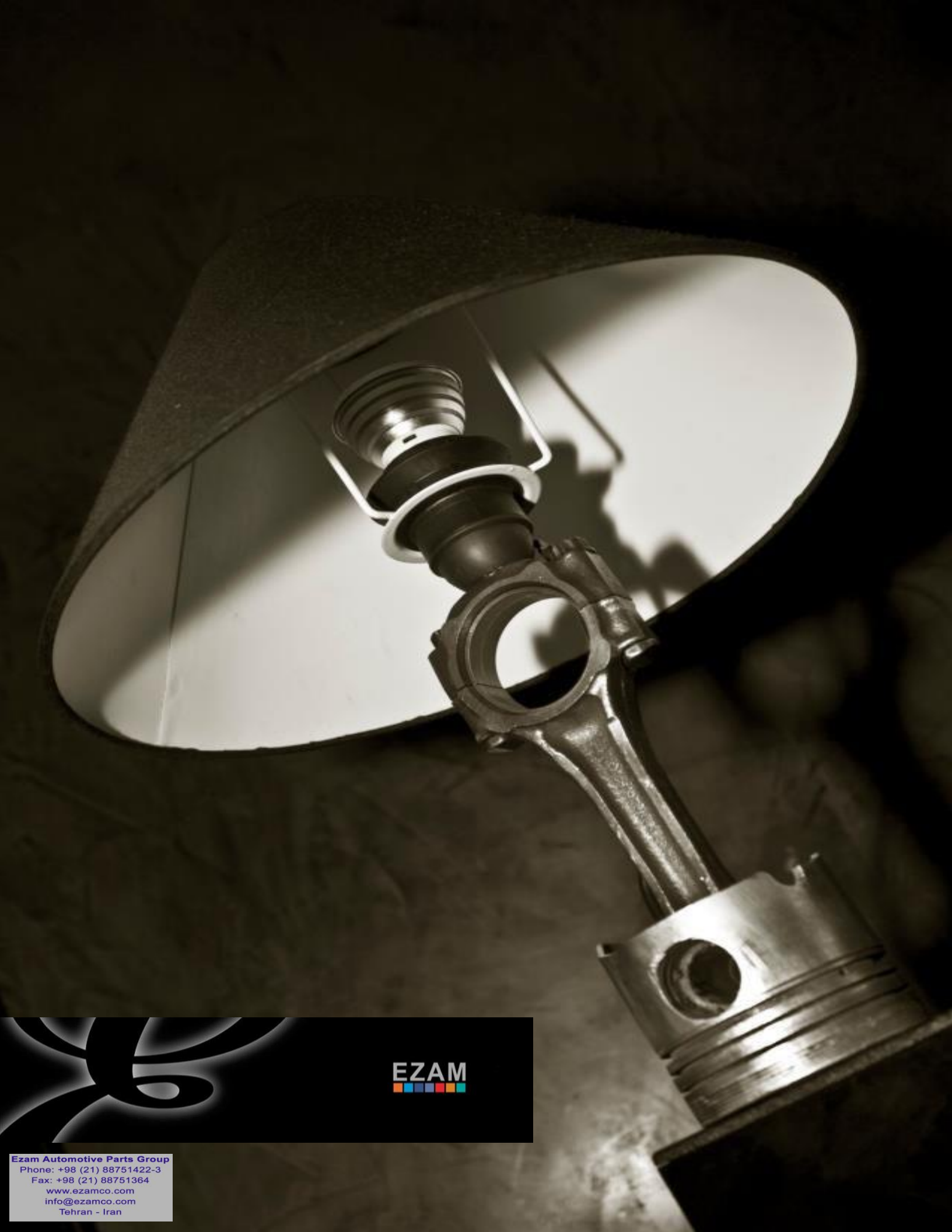


ILLUSTRATION	DIMENSION	PISTON PIN	RING SET/ RING GAPS	CYLINDER DIAMETER/NO.	PISTON & CYLINDER CLEARENCE	KIT SET CODE
	CH= 38 VD= 4.03,3.03 CD= ---- TL= 70	Ø36 * 82.5				

Applications

Z



EZAM

Ezam Automotive Parts Group
Phone: +98 (21) 88751422-3
Fax: +98 (21) 88751364
www.ezamco.com
info@ezamco.com
Tehran - Iran